The United States MILLER

Published by E. HARRISON CAWKER. { Vol. 16, No. 5. } MILWAUKEE, MARCH, 1884. { Terms: $1.00 a Year in Advance Single Copies, 10 Cents.

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JERRY THE MILLER.

Beneath the hill there stands the mill
Of wasting wood and crumbling stone;
The wheel is turning and clattering still,
But Jerry the miller is dead and gone.

Year after year, early and late,
Alike in summer and winter weather,
He patched the bar and caulked the gate,
And the mill and miller grew old together.

'Twas little Jerry all the same,
They loved him well who called him
And whether he'd ever another name
Nobody ever seemed to know.

'Twas "little Jerry, come grind my rye,"
And "little Jerry, come grind my wheat;"
And "little Jerry" was still the cry
From matron old and maiden sweet.

'Twas little Jerry on every tongue,
And so the simple truth was told;
For Jerry was little when he was young
And Jerry was little when he was old.

How Jerry lived was known to fame,
But how he died there's none may know
One summer day the tidings came,
"The brook and Jerry were very low."

And the news was whispered 'round
The leech had come, and he was dead;
Around the mill the people thronged—
"Poor little Jerry," was all they said.

They laid him in his lowly bed,
His miller's coat his only shroud;
"Dust to dust," the parson said,
And the people sobbed aloud.

For he had shunned the deadly sin,
And not a grain of over-toll
Had ever dropped into his bin
To weigh upon his parting soul.

Beneath the hill there stands the mill,
Of wasting wood and crumbling stone;
The wheel is turning and clattering still,
But Jerry the miller is dead and gone.

—*John G. Saxe.*

RYE MILLING.

(Continued from our January number.)

Rye milling on the old system, damages the flour as much, and perhaps more, than wheat milling on the old system damages wheat flour; by reducing grain to flour by one reduction there must be applied too much pressure and power to do it; but as long as customers are satisfied with the product, and the miller is able to do a good business by milling this way, there is no complaint on either side; but when the demand is for a better product, and the miller has to look out for customers for his flour, then it is time to do the grinding in a different way.

Almost every one does admit to-day, that wheat flour made by six or more reductions, is better than the flour was twenty years ago, and the same principle holds good for rye.

On what machines shall these reductions be made? If its process is with rollers or millstones, is to the public a matter of no great consequence so long as the product is good; if the product is not killed by producing it; if the life is not taken out of the flour. Good rye flour is made on roller mills; but if it is as profitable for the miller to grind rye on rollers, as it is to grind rye on millstones, is a problem that has yet to be decided. Grinding rye on rollers will require more pressure on the rollers, consequently more power and more wear on the rollers, and more reductions; but to grind rye on millstones, when the stones are hung and driven in the old way, will not improve the flour to such a degree as it ought to be, even if several reductions are made of the rye.

The millstones, as they are hung and driven, are all right for milling by one reduction; for that purpose they were built; but when the time came, that grain had to be ground by more reductions, then came the time where trouble with the millstone commenced. There are some millers, who are able to balance the millstone as good as could be expected of any human being; and even the very best ones of them find that after a while the runner gets worn-off on one quarter more than on the rest of the stone; the runner gets in wind, and it has to be straightened again. It is almost impossible to balance every runner in a mill, so that it don't get in wind.

Well then, if the cob-head system on millstones don't agree with gradual reduction, do away with it, and get the runner rigid on the spindle. Have an under-runner, and balance the same on the spindle; the runner remains on the spindle all the time; the lighter top-stone gets turned over for dressing. A stone 3½ feet in diameter is large enough for any work on gradual reduction. These stones don't get in wind; they rest on three wings and could be trammed as accurately as any miller wishes for.

Now, to grind rye on millstones arranged in such a manner, the miller is able to hull the grain, and make middlings of the kernel without producing much flour; *the positive parallel distance between the stones* don't allow production of *much* flour; they should not pulverize the bran. The small amount of flour that is produced by the first reduction will be of low grade. After the middlings have been cleaned as well as the miller has means for in his mill, make two reductions on the middlings; that will produce flour which furnishes bread almost as white as the common baker bread of wheat flour; the ground-out middlings, and the bran from first reduction, may then be finished on the fourth reduction, and the miller will have rye flour which is as good and healthy as is contained in the grain, and get all there is in the grain, and nobody can get any more.

THE FLAX QUESTION AGAIN.

We publish this month another communication from our New York correspondent, Mr. J. C. Saxton, on the flax question, in which he renews his suggestion that some flax grower in the West cultivate this season a five-acre field of flax after the mode recommended by Mr. Farrer, of London, in his letter published in our last month's issue, when he will take steps to have it retted by Dr. Dry's process, and show how easy it is to utilize the fiber, and thus make the crop much more valuable to the grower than the price of the seed. This is a matter that certainly ought to be of exceeding interest to the farmers of the West and Northwest, who are raising immense quantities of flax for seed, which seldom yields them more than $7 to $9 an acre, whereas if the straw and fiber were utilized on the plan suggested by Mr. Farrer, of London, in the letter above referred to, they would realize many times that amount.

In this connection we may state that we had a call the other day from Mr. Alexander Blakie, a linen manufacturer, formerly of Piqua, Ohio, who has just returned from Scotland, whither he went last fall, in the interest of a flax-working establishment which he proposes to start in Sioux City, Iowa. Mr. Blakie locates his works in Sioux City, because large quantities of flax are grown in that immediate vicinity, of very superior quality. He informs us that much of the flax grown in that region produces a straw at least four feet in length, with a very superior fiber. Mr. Blakie will make a specialty of the manufacture of bagging, sacking, crash, cordage, reaper twine, etc. He is much interested in Dr. Dry's new process of retting, which, he thinks, may be introduced to the great advantage of the flax growers of the Northwest. He confirms the report that large quantities of flax straw are burned every year, to get it out of the way. The acreage of flax cultivated in this country is from 600,000 to 750,000 acres. We have not the data at hand to show what proportion of the immense quantity of straw grown on this acreage is utilized, but it undoubtedly is very small comparatively, as we now import annually nearly six millions dollars' worth of the coarser flax products, such as tow, coarse sacking, oil-cloth foundation, twine and yarn for carpets, etc. If the fiber was all utilized, as it should be, it ought to add at least $30 to the value of every acre of flax grown in the country, in addition to the amount realized from the seed. This alone would put into the hands of the farmers at least $18,000,000 annually, without the addition of a dollar to the cost of production. By the utilization of the fiber, the production of seed would be largely increased, as more flax would be cultivated. We imported last year over 600,000 bushels of seed, to meet the demand of the crushers, in addition to the large amount produced. Our total imports of flax and manufactures of flax of all kinds amounted to over $23,000,000, from which it will be readily perceived that there is a large opening for improvement in this direction.—*Western Manufacturer.*

THE WASHBURN WILL.

The decision of Judges Lochren, Young and Koon, of the District Court of Minnesota, in the Washburn will case, reversing the decree of Probate Judge Ueland, was published last Saturday. The decision dismisses the petition of Mrs. Washburn, made by her guardian, for the division of the estate according to common law, on the ground that the widow is the only person competent to make such petition; that her power cannot be delegated, and not having been assumed by a court, she being of unsound mind, as well as fully provided for by the terms of the will, the decision is that there must be no change whatever in its provisions.

While the decision is undoubtedly a wise and proper one, and will give general satisfaction, there is some remarkable language used in it, so that it may be, as a whole, termed a "slop-over" on the part of the judges. In proof we submit the following extraordinary sentences:

"*We also appreciate and share in the disinclination to disturb the beneficent disposition of property made by this will, and which illustrates the character of this really great and good man*, and consent to the rule that a man ought generally to be permitted to dispose of his own as he deems proper. We may also imagine it is not improbable that the widow, if competent to act for herself, would respect and refuse to disturb such dispositions. But such conduct would be exceptional disinterestedness. The ordinary rules governing human conduct would prompt her to take all property which she could lawfully acquire. A court acting for her, because of her incapacity to act for herself, should, it seems to us, act as it must be fairly presumed she would have acted if sane—as persons so situated would ordinarily act. The court in such matters acts solely for the person under disability, and we think that the motives and intentions of the testator, as well as considerations of forwarding or defeating his testamentary intentions, whether beneficent or otherwise, should have no regard whatever. The only pertinent question is the one which under the English chancery practice was referred to the master, viz.: Which is most for the benefit of the person for whom the election is to be made? Or in simpler form: Which is the most valuable?"

The sentence italicized by us probably has no counterpart anywhere in the decision of any reported court of the United States. The statement of three learned judges, over their own signatures that they "appreciate and share in" any popular feeling is undoubtedly unique in the legal history of modern times, while a judicial eulogy is, under the circumstances almost equally novel. We have no disposition to find fault with the officers of so high a court, but it is certain that the tradition of judicial forms finds but little support in the district court of the state of Minnesota, which has its seat in the metropolis of the Northwest.

PROPOSED NEW OUTLET TO THE SEABOARD.

Shall grain from Manitoba and Minnesota go to Liverpool by way of New York, or by way of Port Nelson and Hudson's Bay? The question is not so absurd as it may seem at first to those who have never examined it. The Canadian Government has already chartered two railways with large grants of land for each, one to Nelson river and the other to Churchill, on Hudson's Bay, and the union of these was afterward authorized. The distance from Winnipeg to Churchill is about 630 miles, and it is claimed that the railway can be built for $22,000,000. To Nelson the distance is much less. The ground so favors that the cost of construction, it is claimed, would not be more than that of an ordinary prairie railroad for most of the way. At 600 miles from Winnipeg, then, grain can be loaded in steamers for Liverpool. The distance from Churchill or Port Nelson to Liverpool, by Hudson Strait, is about the same as from Montreal to Liverpool. But, in debate of the subject in the Dominion Parliament, Mr. Dawson stated that there is a channel not hitherto followed from Hudson's Bay to Ungarvey Bay—the latter being not far from the entrance to the Strait—by which the distance could be diminished. In any case, with Churchill as near Liverpool as Montreal now is, the question becomes simply one of ice. And Churchill is six degrees further south than Archangel on the White Sea, where English ships trade regularly; indeed, it is about in the latitude of the northern part of Scotland, while Port Nelson is not further north than Aberdeen.

In the Canadian Parliament Sir John Macdonald spoke strongly of the importance of opening the trade of Hudson's Bay, both because of the needs of Manitoba and the vast regions north and west of it, and because for 600 miles on the west coast of the bay the fisheries will be found of great value. He stated that the log-books of the Hudson's Bay vessels for many years were being examined with care for evidence as to the time during which Hudson's Bay can be navigated, and said: "I have no doubt it will be found, when the question is worked out by experience with steam vessels, the period during which the Strait can be profitably navigated will be considerably extended beyond the present idea." Some time ago Mr. Erastus Wiman, of this city, caused log-books of New London whalers to be extensively examined, for evidence on the same point. The information gathered, while highly interesting, is not conclusive; because all the experienced navigators suggest, that navigation through the Strait would be practicable much earlier and much later in the year for steamers than for sailing vessels. One captain says steamers "would have no trouble in coming up to November 1, and some seasons later," while nearly all agree that it would be practicable to enter with steamers about July 1. But it is doubted whether, by running close to shore, safe passage cannot be found during a considerable part of the season which is the most impracticable for sailing vessels. With four months, or even three, of open navigation by the Strait, a vast quantity of grain and other products would find its way to Liverpool by way of Hudson's Bay.

It appears that the people of Manitoba are strongly aroused on this subject. The speeches made in the Dominion Parliament even affirm that much of the product of our own northernmost region would find its way to market by the same route. Though no important division of trade is to be reasonably expected, the opening of a northern route would doubtless hasten settlement on both sides of the border west of Lake Superior, and prove of benefit to both nations. Whether the scheme is practicable or not, it seems, can only be determined by further investigation, which the Dominion Government appears inclined to give without delay.—*New York Tribune.*

While the gamblers and speculators are "cornering" and "holding for a rise" the great staple cereals, and thus keeping them from the foreign markets, which are compelled to look elsewhere for their supplies, the politicians are busy with their obstructive policy to destroy, to a greater or less extent, the domestic demand, by crippling the manufacturing industries and sending the mechanical laborers by the thousands or hundreds of thousands into the agricultural ranks. It is thus that the speculators and politicians, though working in different directions, and primarily for opposite ends, are likely to come together in their achievement of a common evil to the country. The speculators, by keeping our crops from the foreign markets, are compelling those markets to look to other sources of supply, which for various reasons they are only too willing to do, while the politicians, in the hope of obtaining place and power for themselves or their parties, cripple those industries which should create a constantly growing home demand for agricultural products. Between the two classes the great productive industries of every class, upon which the prosperity of the country so largely depends, are likely to be left in the lurch.

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ANNOUNCEMENT:

☞WM. DUNHAM, *Editor of "The Miller," 69 Mark Lane, and* HENRY F. GILLIG & Co., *449 Strand, London, England, are authorized to receive subscriptions for the* UNITED STATES MILLER.

We send out monthly a large number of sample copies of the UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. Send us One Dollar in money or stamps, and we will send THE UNITED STATES MILLER to you for one year.

☞*The United States Consuls in various parts of the world who receive this paper, will please oblige the publishers and manufacturers advertising therein, by placing it in their offices, where it can be seen by those parties seeking such information as it may contain. We shall be highly gratified to receive communications for publication from Consuls or Consular Agents everywhere, and we believe that such letters will be read with interest, and will be highly appreciated.*

CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY for 1884, published by E. Harrison Cawker, of Milwaukee, Wis., and sold for ($10.00) ten dollars per copy, is now ready for delivery. It shows the result of an immense amount of labor, careful inquiry and studious attention to details. It is without doubt the most accurate trade directory ever published, and will be of untold value to those desiring to reach the milling industry of America.

We glean from this neat volume of 200 pages containing no advertisements, that there are in the United States of America and our neighboring Dominion of Canada 25,050 flouring mills, taking them as they go great and small. The work indicates in about 10,000 instances the kind or kinds of power used by the mills, and the capacity in barrels of flour per day. It further indicates cornmeal, buckwheat, rye-flour and rice mills. It shows that the number of mills in the various states and territories of the United States are as follows: Alabama 153; Arizona 17; Arkansas 343; California 222; Colorado 54; Connecticut 288; Dakota 81; Delaware 98; District of Columbia 5; Florida 66; Georgia 631; Idaho 21; Illinois 1123; Indiana 1089; Indian Territory 14; Iowa 790; Kansas 489; Kentucky 713; Louisiana 61; Maine 280; Maryland 353; Massachusetts 340; Michigan 846; Minnesota 487; Mississippi 386; Missouri 1025; Montana 21; Nebraska 250; Nevada 13; New Hampshire 182; New Jersey 442; New Mexico 32; New York 1902; North Carolina 848; Ohio 1443; Oregon 145; Pennsylvania 3142; Rhode Island 51; South Carolina 274; Tennessee 801; Texas 703; Utah 110; Vermont 247; Virginia 781; Washington Territory 61; West Virginia 447; Wisconsin 777; Wyoming 2.

In the Dominion of Canada we find the record as follows: British Columbia 17; Manitoba 54; New Brunswick 198; Nova Scotia 102; Ontario 1160; Prince Edward's Island 39; Quebec 591. Total 25,050.

Taking the work throughout, and it is highly interesting to all concerned in the trade, and we take pleasure in recommending it to the trade.

IT IS FINISHED.

CAWKER'S AMERICAN FLOUR MILL AND MILL FURNISHERS' DIRECTORY FOR

——1884——

is this day, January 31st, completed and ready for delivery.

It contains 25,050 addresses.

It indicates in thousands of cases the capacity and power used.

It is the best trade directory ever published.

Its price to everybody is Ten Dollars per copy, without discount. Sent by mail anywhere.

Address all communications to

E. HARRISON CAWKER,
Publisher.
116 and 118 Grand Avenue,
MILWAUKEE, WIS.

We have received the very handsome catalogue of the DEAN BROS.' STEAM PUMP WORKS at Indianapolis, Ind. Their specialties are fully illustrated.

It is expected that the emigration to the Northwest will be greater this year than ever before. The railroads are preparing to do a great business.

Mr. L. B. Kuhnle, Superintendent of the LIMA MILL FURNISHING CO., of Lima, O., made us a call recently. He reports a brisk demand for the specialties made by his Company.

D. L. Van Moppes, Esq. of 37 Maiden Lane, N. Y., importer of Black Diamonds, etc., called on us recently. Millers using his diamonds for dressing mill stones are highly pleased with their good qualities.

The annual statement of the Millers and Manufacturers Mutual Insurance Co., of Minneapolis, Minn., has just been published, showing a net gain for the year 1883 of $61,420.65. The company is doing a good business.

Citizens of Pierre, Hughes Co., Dakota, offer a bonus of $2,000 cash and a good location for a mill by the side of the railroad track to the right kind of a man or men who will erect a 125-barrel roller mill at that place this year. Pierre is the present terminus of the Chicago & Northwestern R. R.

We imported millions of dozens of eggs from foreign countries last year and paid good round prices for them. It seems almost incredible that American farmers do not furnish sufficient eggs to meet the home demand. The business properly attended to is very profitable as almost any city egg packer will tell you. Let the American Hen be heard from.

There has been altogether too much fuss made about India wheat and its effects upon American farmers. Less than ten per cent. of our agricultural products are exported and the natural increase of our population and the hundreds of thousands of immigrants yearly coming to our shores will soon make a home demand for every barrel of flour we can make.

A Sheboygan, Wis., correspondent writes us that that city is greatly in need of a good first class roller mill with a capacity of at least 200 barrels per day. Sheboygan is a beautiful city of 10,000 inhabitants. It is situated on Lake Michigan and its transportation facilities by lake and rail are unexcelled. Plenty of wheat is raised and an enterprising milling firm with capital could no doubt do well.

GERMANY AND PROTECTIVE TARIFF.

[Written for the UNITED STATES MILLER, by JOHN W. HINTON].

Every intelligent reader knows that Germany has a protective tariff, and that since she has protected her home industries and manufactures, her condition has materially improved, while the wages of her mechanics, artizans and laborers, generally, have risen.

When Prince Bismarck was about to become Prime Minister of Prussia, he remarked to Benjamin Disraeli, afterwards Prime Minister of Great Britain:

"Mr. Disraeli, what I want to do particularly is to get rid of those professors in my country. I want to save Prussia from the professors."

He characterized free-traders as "*doctrinaires*" and "closet men," and added:

"*Doctrinaires*, clergymen and lawyers, but few of whom know anything of the details of public affairs, are generally on that side, (free-trade) and they are led by those who know nothing on the question, but what they have learned from the books of men who have plausibly formulated impracticable nonsense. I have had much annoyance from blockheads who ask impossible answers to irrelevant questions, and as the French proverb says, 'Go about seeking for noon at 2 o'clock.'"

The above are a couple of the utterances of that eminently practical and truly great man, Prince Bismarck, truly great, because he is practical, his statesmanship being directed solely to the preservation and "promotion of the general welfare" of the people of Prussia. His wisdom is nowhere more manifest than in his statement, that, in order "to save Prussia, he must get rid of those professors," they who corrupt the minds of the youth of Germany—those who know nothing "on the question but what they have learned from the books of men who have plausibly formulated impracticable nonsense." He suffered much annoyance from such "blockheads."

Let your readers note what Prince Bismarck said in the Reichstag, May 14, 1882:

"The success of the United States in material development is the most illustrious of modern times; the American Nation not only having successfully borne and suppressed the most gigantic and expensive war of all history, but having immediately afterwards disbanded its army, found employment for all its soldiers and marines, paid off most of its debt, given labor and homes to all the unemployed of Europe as fast as they could arrive within its territory, and still by a system of taxation so indirect as not to be perceived, much less, felt. The United States found every year a great and growing surplus in its treasury, which it could expend upon national defenses or national improvements."

"While the American Republic was enjoying this peculiar prosperity, the countries of Europe, which America most relieved by absorbing their unemployed population, were apparently continually getting worse off. Why was it?"

"He next stated that it was his deliberate judgment, that the prosperity of America was mainly due to its system of protective laws, and Germany has now reached that point where it is necessary to imitate the tariff system of the United States."

Germany, acting upon the advice, and with the guidance of Prince Bismarck, passed "a tariff system like the United States." Under it she is prospering; her condition is improved, the wages of her laboring population, whether skilled or common, have risen, her manufactories have advanced, so that she not only competes with England successfully, but is actually surpassing her, even "carrying the war into Africa." Let us see if it is not so.

Last summer or early in the fall, a member of the British Parliament, Lord Stavely Hill, was interviewed in Chicago, and here is what he said:—

"England has had the worst of it ever since she adopted the policy of free trade. Imports from other countries have been admitted free while our exports to the United States and other places have been subjected to onerous duties, sometimes so high as to be actually prohibitory. There is a growing sentiment in England now in favor of taxing imported manufactured articles instead of admitting them free to compete with the products of our home manufactures. Why, you can now buy a shawl at Glasgow, which is only a short distance from Paisley, the great shawl manufacturing place of the world, for less money than you can buy one at Paisley. Germany is actually exporting shawls to Scotland, and, these being admitted free of duty, the Germans can, of course, undersell us in our home products."

Sir Thomas Browne, who, as a ship builder, requires a large amount of steel plates, complains seriously that steel plates are now so largely imported from Germany as to dangerously threaten that industry in England. So with wire and wire rods from Belgium and other parts of Europe. Protected European countries are distancing free trade England, Germany leading all.

I ask any candid reader what higher testimony, or more positive proof, of the wise statesmanship of the German chancellor could be produced than the results, the practical results everywhere visible, of the improved condition of Germany, whether in the extension of her manufactories, and the higher wages paid to her operatives of every class, since her adoption of a protective tariff, those results dating from the time when she commenced "to imitate the tariff system of the United States," under the advice of her great Chancellor and statesman, Prince Bismarck.

CORRESPONDENCE.

LOUISVILLE, Feb. 22, 1884.

Editor United States Miller:

It appears that Minneapolis and Milwaukee are not alone suffering from the present depressed condition of the flour markets. On my way South a few days ago, it occurred to me that it would be a good idea to visit some of the principal milling cities *en route* in order to ascertain, if possible, the cause of the present depressed condition of Eastern markets. Indianapolis being the first point of importance, I stopped there and proceeded to interview some of the leading mill proprietors. The first gentleman whom I fortunately met was Mr. Cutter, managing partner of the "Indianapolis Milling Co.'s Mills," (formerly Gibson's). He was quite willing to give me any information in his power that would be of interest to the readers of your valuable paper. In reply to my question as to what was the cause of the present depression, he replied, that the present depressed condition of the *milling interests* was no exception, that all other branches of industry were equally so, owing to low prices, and a light demand, coupled with the fact that there was a large supply of last year's products left over, both the raw and manufactured article. Continuing, he said the present price of flour was at the lowest point touched for some time, and mills, until quite recently, were actively seeking orders; their anxiety to secure them caused the excessive supply which naturally resulted in low prices. He added, there is still room for improvement in several branches of the trade, but the outlook generally is so far from being discouraging, that I feel warranted in proceeding to place our mills in order for an early, and we trust, a profitable spring trade.

The next party whom I chanced to meet was Mr. Blanton, of Blanton, Watson & Co., of the Arcade, one of the steadiest running mills in the country. When questioned, he said, we have no reason to complain, our mill is running full time on principally local orders, a trade which we aim to cater to, and find it more profitable and satisfactory than any other; however, he thought the present depression would soon give away, and that better prices, with a moderate demand for *good grades* of flour would take its place. The Hoosier State Mills and Ehrischman A Mills were running about one-third time.

Leaving Indianapolis at 3:15 P. M., in one of the elegant coaches on the Big Four road, I reached Cincinnati at 7 o'clock the same evening. The next morning I called on Messrs. Roots & Co., proprietors of the Broadway Mills and owners of a large mill at Lawrenceburgh, a short distance from Cincinnati. In reply to my questions, as to how steady they were running. Mr. Smith, the able superintendent of the above mills, replied, we are running our Lawrenceburgh Mill steady and our Broadway Mills are down at present, and we cannot say how long it will remain so. Mr. J. K. Hurins was running only to supply immediate local wants. The White Star Mills, owned by E. H. Huntington & Co., has just started and is giving excellent satisfaction; they are simply running to get it ready for an early and remunerative spring trade. The "New Brighton Mills," owned by H. Nagle, is running day times and is disposing of all its products in the city, at good prices. There seems to be a very hopeful feeling in this city that the outlook generally is far from being discouraging, and they all feel warranted in looking forward in the near future to the brightening of the skies. After calling on the Bradford Mill Co., and chatting freely with Messrs. Stewart, Dunlap & Hazelton, for a short time, I returned to the ever popular Burnett House. I prepared to leave for Louisville, Ky., (which is noted for three things, I will not detail them because you all know what they are) over the Ohio & Mississippi railroad, arriving at 7 P. M. The following morning I visited the offices of the several mills and found them all down, on account of the severe cold weather, coupled with the fact that they were carrying large stocks of flour, on which it was impossible to realize at figures that would justify them in selling.

I think that the feeling among manufacturers rests upon a reasonably sound foundation, and that there is no ground for apprehension of lower prices. A good demand, steadily continued through the year is more desirable than a sudden spurt, which would run prices up to a point that would invite greatly increased production, to be followed shortly by an overstocked market and another season of dullness and depression.

In my next I will aim to give you some idea of the leading mills located at Chattanooga and Nashville, Tennessee. T.

HUNTING FISH WITH DOGS.

Captain Mayne Reid in his last story, "*The Land of Fire*," now appearing in *St. Nicholas*, gives in the March instalment the following interesting description of a peculiar Fuegian manner of fishing: "By this, the four canoes have arrived at the entrance to the inlet, and are forming in line across it at equal distances from one another, as if to bar the way against anything that may attempt to pass outward. Just such is their design; the fish being what they purpose enfilading.

"Soon the fish-hunters, having completed their 'cordon' and dropped the dogs overboard, come on up the cove, the women plying the paddles, the men with javelins upraised, ready for darting. The little foxy dogs swim abreast of and between the canoes, driving the fish before them,—as sheep-dogs drive sheep,—one or another diving under at intervals to intercept such as attempt to escape outward. For in the translucent water they can see the fish far ahead, and, trained to the work, they keep guard against a break from these through the inclosing line. Soon the fish are forced up to the inner end of the cove, where it is shoalest; and then the work of slaughter commences. The dusky fishermen, standing in the canoes and bending over, now to this side, now that, plunge down their spears and fizgigs, rarely failing to bring up a fish of one sort or another; the struggling victim shaken off into the bottom of the canoe, there gets its death-blow from the boys.

"For nearly an hour the curious aquatic chase is carried on; not in silence, but amid a chorus of deafening noises,—the shouts of the savages and the barking and yelping of their dogs mingling with the shrieking of the sea-birds overhead. And thrice is the cove 'drawn' by the canoes, which are taken back to its mouth, the line reformed, and the process repeated till a good supply of the fish best worth catching has been secured."

NO PARTNERSHIP.—A bull who had been roaming around the country for several years, tossing up every object he could get his horns under, one day met a bear, and said:

"See here, stranger, why can't you and I live on better terms?"

"How?"

"Why, let us travel together and whack up the profits. You don't seem to be such a bad fellow, and I know there's nothing mean about me."

"My dear sir," softly replied the bear, as he brushed the fly off his nose, "did we enter into partnership there would be no profits. As it is, a toss is followed by a squeeze, and vice versa. Did we both attack the same victim at once we should certainly quarrel and give him a chance to escape."

"That's so—that's so," mused the bull, and he lifted Wabash a point and bellowed to the bear to look out for the tumble.—*Wall Street News.*

THE BRICKLAYERS.

"Ho! to the top of the lowering wall!"
'Tis the master-mason's rallying call;
"To the scaffolding, boys, now merrily climb;
'Tis seven o'clock by the town-bells' chime!
Bring to your work good muscle and brawn;
And a keen, quick eye where the line is drawn;
Out with your saw-tempered blades of steel!
Smoother than glass from point to heel;
Now, steady and clear from turret and port,
Ring out your challenge 'Mort', O Mort',!"
Clink! clink! trowel and brick!
Music with labor and art combine;
Brick upon brick, lay them up quick;
But lay to the line, boys, lay to the line!"

Cheery as crickets all the day long,
Lightening labor with laugh and song;
Busy as bees upon angle and pier,
Piling the red blocks tier upon tier;
Climbing and climbing still nearer the sun;
Prouder than kings of the work they have done!
Upward and upward the bricklayers go,
'Till men are but children and pigmies below;
While the master's order falls ringing and short,
To the staggering carrier, "Mort', O Mort'!"
Clink! clink! trowel and brick! etc.

Who are the peers of the best in the land,
Worthy 'neath arches of honor to stand?
They of the brick-reddened, mortar-stained palms,
With shoulders of giants and sinewy arms,
Builders of cities and builders of homes,
Propping the sky up with spires and domes;
Writing thereon with their trowel and lime
Legends of toil for the eyes of Time!
So that the ages may read as they run,
All their magical might has done!
So, clink! clink! trowel and brick!
Work by the master's word and sign;
Brick upon brick, lay them on quick;
But lay to the line, boys, lay to the line!

HINDMARSH FLOUR MILLS, SOUTH AUSTRALIA.

As was indicated in one of my previous communications, I have made a visit of inspection to the above-mentioned flour mills, and would ask you, meanwhile, to accompany me, while I relate what I saw and was told in regard to the working of said mills. There is not a single mill in operation in the city proper at the present moment, the nearest one to Adelaide being the one which I have chosen as my subject. The mill is situated in the township of Hindmarsh (named after a previous governor of the colony), about two miles to the northwest of Adelaide; and we can take the train to Bowden Station and arrive within eight minutes' walk from the mills, or, say the Hindmarsh tram, and be deposited within a stone's-throw of it. But not being overburdened with a superfluity of that "too solid flesh," and, moreover, being of an enquiring turn of mind, and able to appreciate the beauties of a luxurious and bountiful nature, I will discard either of these modes of progression, and drive my own "pair"; and although the time occupied in so doing may be longer, still I find plenty material to while away the time while on my journey, and hope we will be well repaid for the little extra exertion incurred in so doing.

The day is one peculiar to South Australia. There is a quiet breeze blowing up from the sea, tempering the strong rays of the sun; there is a clear azure-blue sky overhead, and not a cloud visible in "a' the carry." Taking my way out of town by North Terrace, on my left I have the terminus station of the Port Adelaide and City Railway; and almost contiguous are the Houses of Parliament. Directly opposite, and on my right hand, is Government House, the official residence of the Governor of the Colony for the time being. His flag is flying at the top of a tall flagstaff, to apprise the outer world that his Excellency is at home, but as I have other important business in hand, I will not enter, but pass on towards my destination. Immediately a beautiful panoramic view presents itself. In the foreground, slightly to the left, stands the "Rotunda," a handsome iron structure, painted in choice colors, and picked out with gilt and other embellishments. This was presented to the people by Sir Thomas Elder, Bart., and here the people assemble during the summer evenings to hear the pleasing strains of music discoursed by the bands. There is a lawn all around, which slopes away in terraces at the back to the river Torrens, while just a little further back stands the pavilion of the South Australian Cricketing Association, which is a very commodious and handsome structure recently erected. Crossing the bridge spanning the river I will now take my way down the north side of it, and avail myself of the shelter of an avenue of olives, oleanders, and gums, among which the parrots and other smaller birds are keeping up a continual fire of not very musical notes. At the extreme end of this avenue I come to the dam, which makes the sheet of water I have spoken about, and when there is no water going over the sluices are opened for a certain time each day, in order to give the farmers further down a supply for their stock and other agricultural purposes. There is an iron foot-bridge here for passengers who wish to cross the river. On the opposite side from where I now stand loom up two octagonal towers, between which runs a high wall; I can only see one side. This is the Adelaide gaol. Close to the river a number of law-breakers, over whom there are several warders watching, are being graciously entertained to a little light recreation in the shape of stone cracking, which will doubtless prepare them for their sumptuous (?) repast, after completing their allotted task. But I must hasten on, and, casting a glance to my right, I find a terrace of very finely built houses facing the park lands, and occupied by the better class of society. These so-called park lands are belts of land running all round the city, north, south, east, and west, by which names they are respectively designated. They are reserved for the use of the people, and are a great boon to the community in general. I now cross over the Port Railway line, and find myself standing in the front yard of the Hindmarsh Mills. I seek the welcome shelter of the verandah surrounding the offices, on the trellis work of which are hanging the bare vines, and as the season for the grapes has gone by, I avail myself on my host's invitation to refresh myself from some of the orange trees, and start, like a giant refreshed for the fray, on my tour of inspection.

The mill is a very old one, of four stories in height, and surmounted by a dome-shaped roof of galvanized iron, our colonial slate. As I enter, the first thing to attract my attention is a man busily engaged branding flour bags. The brand "Magarey & Co." is one of the oldest, if indeed not the oldest, in the colony; then, under the firm's name, the consumer is apprised of the fact that they have obtained an exhibition award for their flour. Underground there is a bin where the wheat for the next day's use is shot, and carried from thence by elevators to the top of the mill. To the extreme left of the mill stands the gearing-room, where the power of driving the stones is supplied. I may here state that the mill is as yet worked entirely on the old principle, viz., stones and silk bolting reels. A row of spouts, ranged close to the wall, shows where the completed article and offal are to be found. Then there is a long revolving cylinder, clothed with different sizes of wire, to extract the drake, stones, and other damaging material from the wheat. Ascending to the second floor, I come, first, to the stones, of which there are six pairs, but only four at work; they are French burr stones, and measure four feet in diameter. Then there are the burring and smut machines busy at work. There are two loading shutes from this floor, and as much space as possible is utilized for the stacking of flour. The third floor is chiefly occupied by four silk bolting reels, and the bins for supplying the feed to the stones, blasts and smutters, while all the other available space is used as a bran store room. On the top floor I do not find much, save an endless variety of belts, ropes, chains and other gear for supplying the motion to all the sundry machines in the place, and as there is a considerable difficulty in hearing each other's observations, I will retrace my steps to the ground floor, and endeavor to trace the wheat in its peregrinations in fuller detail.

The wheat, when brought to the mill door, is first weighed in on sack steelyards, where a man is engaged weighing and sampling every sack with a "trier," throwing the sample into a receiver beside him when the whole parcel is delivered; the farmer or dealer is paid on this sample. The sacks are usually filled as full as they can be sewed up, without any regard to bushels, and the weight of every sack has to be recorded. If it is intended for the mill at once it is shot into the underground bin, from whence it is carried by elevators to the third floor and passes through a blast machine, to clear off any light chaff or other material, then to the revolving cylinder where the drake—which, by the way, is very plentiful in last season's crop—is got rid of, and any other foreign material that may happen to be among the wheat. It is again elevated to the third floor and passes through a riddle to the smutter and burring machine, and may be seen again on the ground floor running into a large worm-screw, and you, being a stranger to colonial milling, wonder what this tap is doing here; however, there it runs at a good, steady force, as long as there is wheat passing down the screw, as it is well absorbed before the wheat reaches the elevators at the other end. The wonderful dryness of the wheat of South Australia enables it to absorb a great deal of moisture. But what is the reason of this damping? I fancy I hear you ask our guide. Oh! that is to help the color of the flour; it will make the flour very much whiter than if it was ground dry. Then again you ask: Does it give any larger return of flour? Well, says our guide, that is not thought of at all, but he fancies it will give a larger return. (So do we.) It is again elevated to the third floor into the bins, ready now, or nearly so, to be ground. But between this bin and the hopper it passes over another length of wire to get rid of any drake which may have escaped the cleaning machinery, and it is indeed surprising what does get the length of this wire. We have now reached the hoppers, and a stranger is struck with the speed which the stones are working at; they are revolving at the rate of 152 revolutions per minute, and each pair of stones grinds about twelve bushels per hour, so that the spoutsmen have quite enough to do to keep their places clear and in order. Again we find ourselves on the ground floor, feeling the touch of the meal as it passes down the spouts again to be carried up to the silk bolting reels to be dressed, when the offal is passed to a bran duster, and the cleaning operation completed. The silks are quite on the old-fashioned style, with the "ball-shaker" arrangement, and without a spiral brush. The seconds flour is generally kept to the end of the month and reground, to take as much of the best flour out as possible. There is only one standard brand, viz, "Superfine," and the inferior flour resulting from the manufacture thereof is termed household, and sold at about £2 5s. per ton less than the superfine. The perfected material is bagged up in sacks of 200, 100, and 50 lbs. respectively, and when it is the latter, the men's time is well occupied between packing, changing, weighing and sewing. The bran and pollard are filled into sacks according to their holding capabilities, and are branded as containing so many bushels of twenty pounds, and range from 6½ to 8 bushels, this style necessitating another tally of the sacks as they are being despatched. Of course, it ought to be mentioned that the sacks are sold along with the goods, and it is to the miller's interest to get as much into the sack as possible, as he does not expect to see them again. Having been provided with spatulas we get each samples of flour, and try to get the best light we can for our critical examination. What do we find? The flour has got a clear appearance, with that light straw tint so much liked by the connoisseur, while to the touch it has a lively feel, and on being moistened and worked up into a dough is quite strong and ductile enough for anything; the only fault that could reasonably be found are some specks, which, we are told, is the result of some small stones which it is almost impossible to get rid of with the machinery at their disposal. The farmer has got his wheat ready for market in the paddock, and has not forgotten to take a little more than his wheat from the ground, and if the sampler is not wary enough to detect the presence of these stones, his employer will suffer to some extent, both in his pocket and in the appearance of his flour. At the north end of the mill is situated a large flour store, where the bags are piled up even to the roof, and as it happens when we are paying our visit, is almost as full as it is possible to pack it, owing to an entire absence of any demand from the adjacent colonies. The bags are laid down on their flat side, similar to the manner of the wheat stacks which I described in one of my former communications. Then on the east side of the mill we find the wheat store, where when the wheat is coming to hand rapidly during the summer time, it is stored. This structure is entirely composed of galvanized iron, on a light framework of posts, &c., and the wheat is stacked just the same as in the outside stacks without touching the walls. After this is filled, then recourse must be had to open-air stacking. The motive power for all the machinery is, of course, where water is so very scarce, steam. The engines are capable of giving 35 horse power, and are supplied with steam from two large boilers of colonial make. Close to the engine room there is a large reservoir built for the storage of water; thither all the rain water from all buildings is directed, and, for the rest, have to pay so much to the corporation for every thousand gallons used. As we now have had a casual glance at most of the working parts of the mill, we retrace our steps towards town; this time, however, we avail ourselves of the services of the tramcar. Millers here seem as yet to be very conservative as to the old-fashioned methods of treating wheat, and certainly a little competition would do no harm. I have just learned that in the township of Gawler, about 30 miles from Adelaide, an enterprising miller has started a system of rollers, &c., on a small scale, in connection with his other plant, and the samples of flour certainly augur well for his success. I trust I may be able to get his length and have a look over the mill, when I might get as much material as would make another letter. This season has all along been most propitious; we have had an unusual rainfall in the spring, and the creeks were higher than had been known for the past 20 years. We have harvested a splendid crop of cereals, and shall have a very large surplus of wheat for export.—*From the special correspondent of "The Miller," (London.)*

SPECIFICATIONS FOR THE NEXT PRESIDENT.

Ex-Attorney General Wayne MacVeagh contributes to the March *Century* a striking paper on "The Next Presidency," in which he says in part: "There is at this time great and noble work awaiting a President able and willing to do it. It goes without saying that he must be absolutely untrammeled when he takes the solemn oath to defend the constitution and to execute the laws. He must not have sought the nomination, nor must he have shown after his nomination what President Woolsey so aptly called 'a most uncommon anxiety' for his election, for he must be without friends to reward, and without enemies to punish. In the present state of affairs at Washington, he must not only be an honest man, but he must be *a cause of honesty in others*. He must really hate every form of thievery, and must be able to dedicate himself to the solemn work of reforming not only the administrative service of the National Government, but the very atmosphere itself of the national capital.

"Four years of administration of the National Government by such a man would transform the public life of America. He would recognize the just limitations of true civil service reform, and know that all political officers in the Executive Department, all such officers representing in any degree the political action of the Government, ought to be in harmony with it, and that his Cabinet—his official household—ought to be composed of men possessed of his entire political and personal confidence, and in earnest sympathy with him in the work he proposed to accomplish.

"His Secretary of State would take care not to vex foreign nations with requests which he knew ought not to be granted, and which, if made to us under precisely similar circumstances, would be indignantly repelled; but while avoiding such requests, he would keep vigilant watch over the rights of every American citizen in the world, and maintain not only the dignity and honor, but the interests of the country in every quarter of the globe. Our foreign missions would be regarded as political offices, but they would be filled so as to reflect only credit upon the country; while our consuls would be regarded as commercial officers only, and be selected not because of their friendship with politicians, or with the President himself, but because of their knowledge of the people with whom they were to live, and of their ability to advance the interests of American commerce.

"His Secretary of the Treasury would be able to devote all his time to the great fiscal problems which concern that department, and would not be obliged to waste it upon Senators and Congressmen, or deputations of local political magnates, in listening to their appeals for the appointment of a pensioner upon the treasury. In giving to his subordinates the assurance of a permanent tenure while they discharged their duties effectively, he would inspire them with new zeal for the public service, and secure a larger measure of fidelity to the interests committed to their charge.

"His Secretary of War would be able to secure punishment for the men who are now in such numbers tarnishing the fair name of their noble service, and thus bring the army back to its earlier and better state, when conduct becoming an officer and a gentleman was not supposed to include what, in the language of the capital, is by a delicate euphemism called 'duplication of accounts,' but elsewhere is called swindling.

"His Secretary of the Navy would cleanse that department of its rottenness in contracts and in navy yards as well as in ships, and the country would gladly accord him whatever moneys are necessary to place the American navy upon a footing creditable alike to the gallant and illustrious service it represents and the great country whose flag it carries in the waters of the world.

"His Secretary of the Interior would so administer that vast department as to cleanse it of the agents of the Indian ring, the pension ring, and the land ring; and it would then be possible only for honest contractors to furnish the Indian supplies, honest agents to represent claimants for pension, and honest settlers to obtain titles to public lands. Congress would then possibly no longer hesitate to vote the money necessary for the proper treatment of the Indians, as the wards of a rich, civilized and Christian nation.

"His Postmaster-General would place the entire postal service upon a basis of absolute honesty and economy. Defaulting postmasters would not only be dismissed, but punished; and men convicted by the country of robbing the department would not be allowed to secure new contracts, while they were being prosecuted for fraud in old ones.

"His Attorney-General would be able to secure the selection of judges, marshals, and commissioners upon the ground of their fitness by character and ability to represent the administration of justice in their several communities; and the country would no longer be scandalized by the prosecution of unworthy officials who ought never to have been appointed to the places they have dishonored. Of course, it is not intended to suggest that many of the incumbents of these offices have not illustrated the qualities mentioned, but only that such a President, surrounded by such a Cabinet, would be able to do more to purify and elevate the public service in a term of four years than possibly can be done in any other way in the life-time of a generation."

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E. HARRISON CAWKER, EDITOR.

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MILWAUKEE, MARCH, 1884.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. *You will thereby oblige not only this paper, but the advertisers.*

OF the vastness of our corn crop some idea may be formed by a statement made less than three years ago. The writer said: "The United States corn crop averages nearly or about 1,500,000,000 bushels, or 47,000,000 tons, enough to load 5,000,000 rail cars, 30,000 trains each half a mile long, or enough to fill two continuous lines of box cars from Baffin's Bay to Cape Horn, and require at least 60,000 locomotives to draw them."

DURING three days of September, 1873, there were brought to Milwaukee, by railroad, one million one hundred sixty-four thousand nine hundred and forty-eight bushels of wheat! Think of it! More than a million bushels of wheat brought to Milwaukee in three days. The receipts of Milwaukee in those three days were the largest ever received at any one point in the world in the same length of time.

THE Sub-Executive Committee of the Miller's National Association will meet at the Plankinton House, in this city, Monday March 10, and it is supposed that considerable important business will be transacted. In the first place the award of $1,000 will be made to the successful inventor of the bran-packer. Some patent cases of more or less importance will be also considered, and in conclusion, the all-important question to *exporting* millers, of improved bills of lading.

REVIEW OF THE MARKET.

The wheat and flour markets during the past month have undergone no material change. Foreign advices have been rather unfavorable to indicate any improvement in the way of export business and in absence of speculative business in wheat on our local markets combined with heavy stocks in store and an aggregate increase in the visible supply and on passage, exporters may be said to be almost out of the market for the present. Most millers are buying just enough to satisfy the immediate wants of their trade. The London *Miller*, of last month, commenting on the grain and flour trade, says, "cheapness seems signed, sealed and delivered over to the new year. The LONDON market is full and buyers are easy over the future; meanwhile the public goes on steadily satisfying its wants, regardless of the market causes that make the loaf cheap." The natural conclusion is, that last year's harvest was a plentiful one, (which it was), here and there, but not everywhere. The truth is, 1882-'83 started with good stores and subsequent receipts made the campaign add to its granary and mill stocks. Bargains were plentiful, and thus low prices tempted buyers to accumulate stores almost *against* their inclinations; now wheat and flour, which looked cheap in 1883, looks like being dear in 1884; even, although values are grounded on a lower level, than it has occupied for the last twenty years; the test, however, of wintry cold has not yet been felt, and numerous adverse incidents may possibly supervene to change the course of prices so long in buyer's favor.

Bear movements have to a large extent influenced the market during the month, with unfavorable news daily received from Europe, respecting their grain and flour markets, and an absence of speculation at home. *The Bulls* upon the whole have had the worst of it.

The weather so far has been favorable for the winter wheat crops of the United States; advices from England and the Continent also report winter wheat crops as progressing favorably. The month of February closes and March opens with fair prospects for the winter wheat crops, but with no perceptible signs of improvement in prices of breadstuffs; continued dullness in the trade pervading the grain markets of the United States and Europe; buying is confined to the actual wants of the trade, no desire being shown by purchasers to accumulate stocks. Orders for wheat from Europe are at such low limits as to preclude all chance of business, notwithstanding the very low rates of freight current to London, Liverpool and Glasgow. Prices offered by buyers at these points for No. 2 wheat are 10 cents per bushel under limits at which orders can be filled.

Annexed is a return showing the extent of the import of cereal produce into the United Kingdom during the first twenty-two weeks of the visible supply of wheat in the United States, the quantity of wheat and flour afloat to the United Kingdom, and the exports for four weeks, compared with previous years:

IMPORTS.

	1883-84.	*1882-83.*	*1881-82.*	*1880-81.*
Wheat....cwt.	24,869,120	28,757,926	26,843,456	25,750,295
Barley.....	9,105,911	8,804,656	6,561,092	6,923,881
Oats.....	5,637,005	6,516,816	4,583,013	5,093,183
Peas.....	786,641	981,139	864,209	1,209,992
Beans.....	1,226,148	998,318	728,048	1,037,153
Indian Corn...	11,946,888	5,649,053	10,611,236	15,188,576
Flour.....	6,455,411	6,820,816	3,340,153	5,739,564

THE SUPPLY OF BREADSTUFFS.

The visible supply of wheat in the United States and Canada on the 23d inst. was 31,474,951 bush. The amount on passage for the continent of Europe on that date was 2,480,000 bush., and for Great Britain 16,400,000 bushels, making the total in sight and afloat for Europe 50,354,951 bushels, against 50,228,913 the week previous, 43,909,914 the corresponding period last year, 49,285,922 in 1882, 49,302,000 in 1881, and 46,995,000 in 1880.

ON PASSAGE FOR THE UNITED KINGDOM.

The following table shows the amount of wheat, flour and corn on passage to the United Kingdom for the ports of call and direct ports on the dates mentioned:

	Feb. 23, 1884.	Feb. 16, 1884.	Feb. 24, 1883.
Wheat and Flour, quarters..	2,050,000	2,000,000	2,275,000
Corn, quarters.....	120,000	110,000	200,000

EXPORTS OF BREADSTUFFS.

The exports from seven Atlantic ports for the week ended Feb. 23, 1884, were as follows:

	Flour brls.	Wheat bu.	Corn bu.
To United Kingdom.....	45,357	236,460	317,055
To Continent.....	6,514	259,808	201,110
Total week.....	51,871	496,268	518,165
Previous week.....	107,663	525,638	672,076
And for the last four weeks:			
To United Kingdom.....	336,280	1,606,201	1,757,975
To Continent.....	37,033	1,457,488	760,809
Total for four weeks.....	373,313	3,063,689	2,518,784

INDIAN, AND AMERICAN WHEAT.

Editor United States Miller.

Ever since John Bright said, a year or so since: "All our eyes are now turned towards India," the question of the wheat supply, has been an all important one, not only for England, but as to its effect upon the United States, by the competition that would result from the development of the illimitable wheat fields of British India.

Many of our English exchanges are agitating the India wheat question, a subject the importance of which cannot be ignored by our own country, as "English eyes," and English CAPITAL, are now turned towards India.

The *Iron and Coal Trades Review* (England) of Feb 1, treats at length on the probability of England 'ere long deriving all the grain she needs from her Indian Empire. It says:

"It is contended by some commercial men, who know India well, that if the railway and irrigation facilities were made ample and abundant, she might pay the freight from her own shores to Liverpool, and thence to the seaboard cities of the United States, where she could undersell the Western farmer, and still have a handsome profit. Yet we find at present the Indian farmer is poverty-stricken, while his rivals in America, Australia, etc., who have access to the seaboard, are prospering, and his poverty results from his having no market for the surplus products of his land."

In commenting upon the want of facilities for getting the grain to the seaboard, the same journal says:

"It cannot be denied that there is a great future before our Indian Empire, if proper means be taken to develop its agricultural resources, which are almost illimitable. We derive a large proportion of our imported grain from America, but we could get the whole from our Indian possessions even now, and be independent of the United States in this respect, if India had the same facilities for transport as America. That is the whole gist of the difficulty—the lack of railways, and the necessity for improved means of transport should be impressed "in season and out of season" upon our legislature. The limited sum the Indian Government are allowed to spend annually on the construction of railways is far too small, and India deserves much better treatment at our hands than she gets. In twenty-seven years we have only constructed there some 8,000 miles of railway, whereas in the United States more than that length of line has been laid down in a single year, and there is no question that the unprecedented development of America is largely due to the growth of her railway system."

As to the feasibility of the project now contemplated in England, one of the journals thus alludes to the subject:

"Moreover, a proper system of railways would be a preventive of the frequent famines from which various parts of the Empire suffer, for then grain could be conveyed without delay, and at little expense, from districts where the harvest had been abundant to another where it had been deficient. It is not as if any sacrifice would be made by the Government in constructing new lines rapidly, for the lines already made are prosperous and are still prospering, notwithstanding great reductions in rates. They are paying probably better on the whole than our home railways, and 5½ per cent cannot be considered as otherwise than a fair dividend. In the present state of the market, money could easily be borrowed in this country if the Indian Government gave a guarantee of 3 or 4 per cent., which they might safely promise, seeing the success that has attended the railways already in operation."

The project is to increase the railroad mileage of India, now a little over 8,000 miles, and all built by British subsidies, to 20,000 miles, as branches to reach from the trunk railways into the hearts of the wheat fields. In short, the ablest of English minds are now occupied in devising means to supply England with food from her own dominions, and to render her independent of foreign countries, particularly the United States. In fact, it is only a national protective system, developing by protectional subsidies, her own agricultural regions. Nothing has, perhaps, contributed more to this agitation than the recent writings of English travelers over the British Dominions, one of whom, traveling in Australia, stated:

"Herds of oxen and flocks of sheep are crying to be eaten, and he returns to another part of the same sovereign's empire, where starving throats are wide open, clamoring for meat to eat, yet no ingenuity can contrive a scheme for bringing meat and mouth together."

To bring the food, "meat and mouth together," is now the chief aim of British statesmen, and it will be accomplished. In that achievement lies a great danger to American farmers.

An American exchange says:

"People in the United States fail to realize the rapidity with which British India is entering the arena of trade to compete in supplying the world with wheat and cotton. Last year the exports of wheat from India amounted to about 36,000,000 bushels, an increase over the previous year of fully 50 per cent., and more than half as much as was exported from the United States in the same time; and for the last three years that country has sent to Europe about 1,750,000 bales of cotton, against about half that amount in 1879. While American speculators are "cornering" our chief agricultural staples, "holding for a rise," they are offering a tremendous premium for the development of those products in the far East, and with results that must be felt."

J. W. HINTON.

MILWAUKEE, Feb. 28, 1884.

THE STEAM MARINE OF THE WORLD.

BY CONSUL CRAIN, OF MILAN.

It may be expected that the measures which Italy will adopt the coming winter will be limited to her immediate wants. It is estimated that an increase of 300,000 in the tonnage of her merchant steam fleet will enable her to do her share in the international carrying trade.

The government is urged to employ only national ships for the import of coal for naval and railway use, which of itself will give an employment to the extent of 1,000,000 tons and upward per year.

Taxes of all kinds on shipping will be reduced, and such premiums to shipbuilding and navigation granted as will compensate for natural disadvantages.

The total number of steamships of the world on the 1st day of September, 1883, was 7,734, of 9,232,096 gross tonnage. In this the British flag enters for 4,649, representing 5,819,819 tons.

France holds second position among European states. She has 458 steamships, representing 667,474 gross tonnage, which is an increase in tonnage of 365,695 since December 31, 1881.

The German merchant steam fleet has a total tonnage of 476,839.

After Germany, in the order of importance, come Italy, Spain, Holland, Russia and Austria-Hungary.

Each year the sailing marine diminishes while that of steam increases.

In the last five years the augmentation in the number of the world's ships has been 1,869, having 3,052,061 gross tonnage.

The European sailing marine is as follows:

Countries.	Ships.	Tonnage.
England.....	17,875	5,271,160
Norway.....	4,603	1,366,911
Italy.....	5,084	915,049
Germany.....	2,614	894,558
Russia.....	2,434	452,316
France.....	2,131	468,272

The merchant sail and steam marine of the world numbers 43,838 ships, with a capacity of 28,879,973 tons.

OUR TRADE WITH NEW ZEALAND.

Consul Griffin, of Auckland, in a report dated Nov. 19, 1883, says that the fact that the bulk of American goods reaches New Zealand by way of London, renders it very difficult to form anything like a just estimate of the extent of the trade between the two countries. The direct trade with the United States is very small, but small as it is, it is nevertheless steadily increasing. During the year 1882 the value of the various kinds of merchandise imported into New Zealand from the United States amounted to only $2,317,465 against $1,718,226 for 1881, an increase of $599,239 for 1882. The increase consisted principally in the imports of kerosene, agricultural implements, machinery, ironmongery, wire fencing, wooden-ware, leather, canned goods, fruit, &c. The value of the direct shipments of kerosene for 1882 was $284,445 against $193,335 for 1881, an increase of $91,110 for 1882. The value of the direct shipments of agricultural implements for 1882 was $51,945 against $15,875 for 1881, an increase of $36,130.

The value of the direct exports to the United States from New Zealand for 1882 was $2,178,420 against $1,778,905 for 1881, an increase of $394,515 for 1882. This increase consisted in the export of gold and kawri gum; the former increased from $892,610 to $1,372,785 and the latter from $563,420 to $649,940.

THE INJURY BOGUS NEWSPAPER REPORTS HAVE DONE.

Letters from Minister Morton show that the French interdict concerning American pork was due to articles in American papers published solely to affect prices, but which were copied in good faith in France. Not long ago, a newspaper in Washington demanded retaliation, while on another page of the same date, a dispatch from Wisconsin gave full particulars of the death of twelve people in that State from diseased pork. The dispatch, when run down, had no real foundation. The agent from this country to England last fall, in the interest of the cattle export trade, relates an experience with regard to the English law that American cattle shall be slaughtered in Liverpool. There is no interdict against shipments from Canadian ports. It was demonstrated to the crown officer that four-fifths of the beef shipments from Canadian ports were actually from Chicago yards. This demonstration was so complete that a repeal of the law was promised, when the crown officer received a Chicago paper containing an account, intended only to affect speculation. that pleuro-pneumonia had broken out in the stock yards in a virulent form. This account, of course, defeated the diplomat's mission, nor was the defeat lessened from the fact that the account was wholly fictitious.—*Philadelphia Press.*

BOOK NOTICES.

No journal of its class has attracted so much attention during the past twelve months as the TURF, FIELD AND FARM, published weekly at 39 and 41 Park Row, New York. It has discussed breeding theories in such a way as to make a marked impression upon the thoughtful public mind and to draw out the views of many able students in the problem of reproduction. It has shed a great deal of light upon an important question, and its opinions have been widely quoted. Its reports of running and trotting meetings have been models of clearness and accuracy, and its Field and Kennel department has been better than ever. The first bench show, the first gun trial and the first field trial in America were given at the suggestion and under the direction of the TURF, FIELD AND FARM, and so there is a logical reason for the paper being recognized as an authority upon dogs and guns as well as horses. The athletic and aquatic champions have signed in its office articles of agreement for their important matches, and the paper is extensively read by men fond of these vigorous sports. Much space is given to the two great intellectual games, chess and checkers, and on these it speaks with authority. The dramatic department bears the stamp of scholarship and originality. The amount of fresh and original matter published by the TURF, FIELD AND FARM, is astonishing, and it is gratifying to learn that the circulation of the paper is rapidly increasing. In ability, circulation and influence it is second only to its great rival, the London *Field*.

THE OLD GRIST MILL.

BY R. H. STODDARD.

The grist mill stands beside the stream,
With bending roof and leaning wall,
So old that when the winds are wild
The miller trembles lest it fall;
But moss and ivy never sere,
Bedeck it o'er from year to year.

The dam is steep, and welded green:
The gates are raised, the waters pour
And tread the old wheel's slippery steps,
The lower rounds forevermore;
Methinks they have a sound of ire;
Because they cannot climb it higher.

From morn to night in autumn time,
When heavy harvests load the plains,
Up drive the farmers to the mill,
And back anon with loaded wains;
They bring a heap of golden grain,
And take it home in meal again.

The mill inside is dim and dark,
But peeping in the open door,
You see the miller flitting round,
And dusty bags upon the floor;
And by the shaft and down the spout,
The yellow meal comes pouring out.

And all day long the winnowed chaff
Floats round it on the sultry breeze,
And shineth like a settling swarm
Of golden winged and belted bees,
Or sparks around a blacksmith's door,
When bellows blow and forges roar.

I love my pleasant quaint old mill!
It 'minds me of my early prime;
'Tis changed since then, but not so much
As I am by decay and time;
Its wrecks are mossed from year to year,
But mine all dark and bare appear.

I stand beside the stream of life;
The mighty current sweeps along,
Lifting the flood-gates of my heart,
And turns the magic wheel of song,
And grinds the ripening harvest brought
From out the golden field of thought.

YEAST VS. LEAVEN.

PROF. JAGO COMPARES ENGLISH AND FRENCH BREADMAKING.

"It is well known," says Wm. Jago, in the London *Confectioner*, "that the methods employed by our neighbors across the channel for breadmaking differ considerably from those in use in England. In connection with these differences the result of some recent researches by M. Chicandard, an account of which appeared in the *Comptes Rendues* and which is the subject of abstract in the *Chemical Society Journal*, will be of interest. Although the treatment of flour by English bakers varies considerably, not only in different parts of the country, but even in the area of London itself, yet one general principle underlies the operation of panification, however much that principle may be modified in its application. A portion of the flour is mixed with yeast and warm water, set aside to rise, and then constitutes the 'sponge.' This is mixed in with a larger quantity of flour and the whole mass, after standing for a time, is cut up into loaves and put in the oven. Now some bakers sponge with flour, yeast, and water alone, others add fruit to the sponge, some use a larger proportion of the flour for the sponge than others; still, all these variations are simply modifications of, not departures from, the general principle of 'raising' dough by fermentation.

"The French method is, however, entirely different. A lump of dough from the preceding batch of bread is preserved; this weighs about twelve pounds. made up of eight pounds of flour to four of water, and is the fresh leaven (*levain de chef*). This fresh leaven, after remaining for about ten hours, is kneaded in with an equal quantity of fresh flour and water, and thus produces the *levain de premiere*; again, this is allowed to stand for some hours (about eight), and is kneaded in with more flour and water. After another interval of three hours, 100 pounds of flour, fifty-two of water, and about ½ lb. of beer yeast are added; this produces the finished leaven (*levain de tout point*). The finished leaven weighs about 200 pounds, and is mixed after standing two hours, with 132 pounds of flour, 68 pounds of water, ½ pound yeast and 3 pounds of salt. The dough thus formed is divided into two moieties, the one is cut into loaves which are kept for a time at a moderate temperature (77 deg. F.) and then baked. The bread thus produced is sour in taste and dark in color. The remaining half of the dough is kneaded with more flour, water, yeast, and salt, and divided into halves; the one quantity is made into loaves, which are allowed to ferment and then baked; the other is subjected again to the operation of mixing with more flour, etc., and working as before. This sub-division is repeated three times, the bread improving at each stage, and the finest and whitest loaves being produced in the last batch. I have described this French mode of working with leaven at some length, because it is probably not well known in England; for the figures given I am indebted to Mott's Dictionary of Chemistry. My readers will, doubtless, have already noticed that as the quantity of leaven decreases and that of yeast increases, the quality of bread improves. In the latter stages they 'reform the leaven indifferently;' the English baker is in this matter more logical and 'reforms it altogether.' As a consequence, he produces from flour and yeast a bread better as a whole than that resulting from the complicated French system of leavening.

"The two systems of making the bread are different, and it would further seem, from M. Chicandard's paper, that the chemical actions are also distinct. In sponging, as carried on in England, it is always assumed that certain of the soluble albuminoids exercise the property they possess of changing some of the starch into sugar and dextrin, and that the yeast acts on the sugar (maltose) and converts it into alcohol and carbon dioxide gas. Although lately we have learned much of this action of yeast on maltose, we have not, as yet, learned all. We now know that yeast is a plant, and that it also thrives and multiplies in either solutions containing maltose, as beer-worts or flour paste containing the same ingredient. We also know that, as this growth goes on, the sugar undergoes the remarkable decomposition before mentioned. It may be that the yeast plant assimilates the sugar—digests it, as it were—and then excretes the alcohol and carbon dioxide; or, what has more show of probability, in the presence of this particular form of life, the more complex molecule of sugar is broken down into the simpler ones of alcohol and carbon dioxide. For the purpose of the baker, it is not important which of these is the true explanation. It is, however, known that certain other changes, as putrefaction, are also caused by the presence of minute living beings (organisms). In support of the view that the fermentation of bread is analogous to that of wort—that is, that it is a change of maltose into carbon dioxide and alcohol—it may be mentioned that on condensing the vapors of an oven the resulting liquid was found to contain 1.6 per cent. of alcohol. Now, as alcohol is only produced by alcoholic fermentation—that is, by the growth and development of the yeast plant—we must have proof of the fermentation of bread being alcoholic.

"Chicandard, on examining French leaven-made doughs, finds that they contain no yeast-cells, and further, that the yeast-cells (*saccharo-myces cerevisiæ*), which are introduced during the latter stages of the bread-making, gradually diminish in number. This is evidence, as far as it goes, of the fermentation being non-alcoholic, as the yeast-plant during active growth thrives and multiplies. In addition, he finds that both the leaven and dough with yeast contain a number of other organisms, which are probably *bacteriæ*, and whose presence always causes putrefactive changes. He also examined the gases evolved by the dough, and finds these to be carbon dioxide, hydrogen and nitrogen. Now, these gases correspond in composition to those evolved during the putrefaction of nitrogenous bodies or albuminoids. The conclusions drawn by the experimenter from these investigations are, that the fermentation of leavened bread is not due to yeast, but to putrefactive changes induced by *bacteriæ* in the gluten or insoluble albuminoids. He further finds, that these *bacteriæ* develop normally in dough exposed to the air, which thus becomes a leaven, and that their development is accelerated by the presence of yeast.

"From a scientific point of view, these researches have considerable importance. They are also not without their lesson to the practical baker. I doubt if any English baker will disagree with me in preferring the English yeast-fermented bread to the French partly putrefied dough, charged with the gases evolved during the breaking down of organic matter by this normal process of decay. Although, however, our English method is a yeast fermentation, it still is well for us to consider how far we may not, also, at times, allow this putrefactive action to proceed simultaneously during the sponging of dough. All unsound flours or doughs which have been allowed to come in contact with scraps of dough left from a previous baking are extremely liable to the putrefactive changes; and the probabilities are, that in nearly every instance where a musty, badly smelling loaf is produced, that putrefaction has set in.

"Another point of importance to both consumer and baker lies in the fact, that in yeast fermentation it is the starch which, by decomposition, yields the distending gas. The starch is the most plentiful substance present, and not the most important food-stuff. In this leaven fermentation, or, strictly speaking, putrefaction, it is the gluten which suffers. Two evil results follow: the flesh-producers are thereby lessened, and the elastic gluten, the body whose presence causes a well-piled loaf, is, in part, destroyed. In many bakeries improvements in the course of procedure may, doubtless, be made; these may frequently, with advantage, take the form of seeing that sound, strong yeasts and flours be adopted, and all precautions taken to avoid the putrefactive leaven, removing the slightest traces of old dough from troughs and boards, ever keeping in mind that 'a little leaven leaveneth the whole lot.'"

THE LIMITATIONS OF MACHINERY.

Not very long ago watchmaking was one of our most prominent industries—prominent not because the capital invested or number of persons employed in it was remarkably large as compared with many other industries, but from the fact that it seemed to offer a most striking illustration of the triumph of American ingenuity over all obstacles, natural and artificial.

Until we began to make watches the trade had been almost monopolized by Switzerland and England. The Swiss had attained a special celebrity for their skill in the art, and some English makers produced work equally good, but the Swiss watches, besides being well made, were very cheap, and consequently there were but few parts of the world in which they were not known and esteemed.

But the application of machinery and the factory system to watch manufacturing in this country caused a sudden change in the situation. The frugal habits of the Swiss workman, his simple diet of black bread and wine, his patient industry, even the rare technical skill which had been handed down from father to son through generations of watchmakers, were not sufficient to offset the ingenious machinery of the American factory—those marvelous machines, so wonderful in their accuracy and rapidity, never tiring, never making mistakes, needing not even the poor fare of black bread and wine, but content with the still cheaper diet of steam. It seems as if Switzerland's famous industry had seen its best days, and American timepieces were to supersede all others.

It is a pity that a picture so pleasing to our national pride has not yet, and perhaps never will be realized. The American consul at Geneva has recently made a report to our government on this matter of watchmaking, and from his paper it appears that in this industry Switzerland has now regained all the ground which had been wrested from her by our own manufacturers.

At a test of English, Swiss and American watches made recently at Geneva, under circumstances that forbid any idea of fraud or error, it was found that the Swiss watches were superior to all others, and the English came next in point of merit. But the Swiss watches were the cheapest as well as the best.

The explanation of this is very simple. The Swiss have taken our machinery and supplemented it by a manual skill and system of technical training which we do not yet possess.

The lesson of this is that mere machinery will not do everything. Skilled workmen must accompany good machines in every country which desires to excel in the industrial arts. It is worth while to emphasize these points, because many people, and among them quite a number of manufacturers, entertain the idea that American machinery is sufficient within itself to give us the advantage over all other nations. It is these persons who, believing that machines are all that is necessary, and that any cheap laborer will do to attend them, scoff at plans for the technical education of mechanics, improved systems of apprenticeship, and other reforms advocated by more intelligent and public-spirited men.

Yet, as we see in this illustration from the history of watchmaking, we cannot hope to monopolize our machinery, and it is therefore of the highest importance for us to produce by means of a judicious system of apprenticeship and technical training a body of workmen as well versed in the fundamental principles of mechanics, as quick of eye and deft with hand as the men the technical schools of Europe are now turning out to compete with us.—*The Blacksmith and Wheelwright.*

THE MANITOBA WHEAT CROP.

In a recent communication from U. S. Consul Taylor, stationed at Winnipeg, he says:

"It was hoped that a bountiful crop, increasing the exportation of wheat fully fourfold—from 500,000 to 2,500,000 bushels—would contribute to the relief of business circles; but a cold and tardy season, followed by a severe frost on the 7th of September, has involved the prospect of such an exportation in great uncertainty. It will be fortunate if a surplus of 1,000,000 bushels shall be ascertained to be available; but some compensation for such a public misfortune will be realized in the practical recognition of the absolute necessity of plowing for the cultivation of wheat in the fall, and sowing at the earliest possible moment in the spring, on the slightest relaxation of the surface from frost. A thaw of two inches will suffice, while there have been frequent instances of the advantage of sowing in the last fortnight of October. The moisture of receding frost robs the spring wheat strongly, invigorates the plant to sustain a remarkable degree of drought, and assures maturity by the middle of August.

The Saskatchewan settlements, 500 to 1,000 miles northwest of Winnipeg, escaped the frosts of the 7th of September, which extended from central Iowa and Illinois to Dakota and Manitoba, injuring the crop of maize or corn in the southern districts to even a greater extent than the wheat fields of the north were damaged; but there is good authority for the statement that in the districts of the corn belt, or zone of the Mississippi valley, the crop is never in danger from frost where the seed has been obtained from the most northern limit of its full maturity, a circumstance which assures an early harvest. In like manner, the wheat growers of Minnesota and Dakota find it expedient to improve the quality and increase the quantity of wheat production by obtaining seed from the Red River Valley and Manitoba. There can be no doubt of the expediency, in the interest of American agriculturists, of a modification of the tariff, which would admit consignments of seed wheat free of duty.

SELECTING A HORSE.

This is a most difficult matter with many people. Many a millionaire in our cities, knowing nothing of "horse-flesh," or "points" is swindled by those employed to make purchases. On this subject the *Turf, Field and Farm*, than which there is no better authority in this country, says: "In buying a horse, first look at his head and his eyes for signs of intelligence, temper, courage and honesty. Unless a horse has brains you cannot teach him to do anything well. If bad qualities predominate in a horse education only serves to enlarge and intensify them. The head is the indicator of disposition. A square muzzle, with large nostrils, evidences an ample breathing apparatus and lung power. Next see that he is well under the jowl, with jaw-bones broad and wide apart under the throttle. Breadth and fullness between the eyes and ears are always desirable. The eyes should be full and hazel in color, ears small and thin and thrown well forward. The horse that turns his ears back every now and then is not to be trusted. He is either a biter or a kicker, and is sure to be vicious in other respects, and, being naturally vicious, can never be trained to do anything well, and so a horse with a rounding nose, tapering forehead, and a broad full face below the eyes, is always treacherous and not to be depended on. Avoid the long-legged, stilted animal—always choosing one with a short, straight back and rump, withers high and shoulders sloping, well set back, and with good depth of chest, fore legs short, hind legs straight with low down hock, short pastern joints, and a round mulish shaped foot."

GRAIN ELEVATOR CHARGES AT BUFFALO AND NEW YORK.

Capt. M. Du Puy, of Buffalo, in a letter addressed to the president of the Board of Trade and Transportation at New York, written in behalf of the Erie boatmen, states as facts in regard to Buffalo that of the 36 grain elevators in that city 17 did no work in the season of 1883, 19 were used alternately, but at no time were more than 12 of them manned for business; still the grain passing through Buffalo paid a big margin on the 24 elevators not used.

They charge vessels and propellers $5.25 per 1,000 bushels to unload them, when $2.50 per 1,000 bushels paid the bill in any Canadian port. Their charges for trimming grain to the leg of the elevator are from 40 to 60 per cent. higher than in numerous other ports. The following exhibit shows their receipts, expenses and profits:

RECEIPTS.	Per 1,000 bus.
Vessels pay for trimming	$ 4 00
Vessels pay for elevating	1 25
Grain pays	7 50
Grain pays for blowing	1 25
The screenings blown out of the grain is worth on an average	25
Total receipts	$14 25

EXPENSES.	
To trimmers	$2 00
To running expenses	1 00
Total expenses	3 00
Profit	$11 25

At the above charges, the writer figures out on the 67,207,355 bushels grain received by lake a total profit to the elevator ring in Buffalo of $656,000 for transferring only, and estimates at least $250,000 for storage.

But bad as this is, Capt. Du Puy says the elevator men in New York harbor can discount it. They charge $7 per 1,000 bushels for trimming grain in ships; in Chicago 75 cents per 1,000 bushels pays the bill.

The following exhibit shows the receipts, expenses and profits of an elevator in New York harbor for transferring:

RECEIPTS.	Per 1,000 bus.
Canal boats pay for discharging	$ 5 00
Grain pays	5 00
Grain pays for blowing	2 50
Vessels pay for trimming in	7 00
Total receipts	$19 50

EXPENSES.	
To trimming canal boats	$1 50
To trimming vessels	3 00
To running expenses	1 00
Total expenses	$ 5 50
Clear profit	$14 00

This statement shows that they clear one and four-tenths cents per bushel for transferring. Like Buffalo, an outsider cannot tell how much they get for storing grain, but it is safe to place the amount at $1,000,000 per year.—*Baltimore Journal of Commerce.*

THE SIZE OF TURBINES.

Very many consider that the larger the turbines the better, simply because the water has a greater leverage on the wheel. It is of course true that the leverage on the shaft is greater as the diameter is greater; it is equally true that the push (pull, strain, or constant force exerted) on the circumference of the turbine remains precisely the same, whatever the diameter may be, all other things being equal. Within a week a mill-owner has used this very same "leverage" argument in favor of this old style of things. Only think of it! "the leverage of the water." He didn't stop and think that the working speed of the water pouring into his little 2-foot turbine was 30 feet per second, that the working speed of his saw teeth was not less than 120 feet per second, and that, therefore, the working speed of the water had got to be increased four times, in some way, in order to keep up the proper working speed of the teeth; and further, that if he gave the water an advantage to begin with by way of "leverage" on the shaft (only) of a wheel twice as large (as really needed) he would have to beg it all back again by doubling the size of some driving gear, or pulley, in order to get the proper speed of saw teeth. And while it is true he would have twice the twisting strain on his turbine shaft it is just as certain he would have less pull on his saw teeth. Now as this increase must be brought about by means of gears and pulleys, the larger ones on the turbine shaft, the smallest ones nearest the saws, it follows that the smallest turbine consistent with water economy is the best. It has the least dead weight to carry, the least frictional surface to retard and pull back.—*Cotton, Wool and Iron.*

PROFESSOR HUXLEY ON TECHNICAL EDUCATION AND TRADE COMPETITION.

In presenting the prizes to successful students in a London technical school lately, Professor Huxley took the occasion to urge the necessity for combining skill in handicraft with technical knowledge. All his life he had been trying to persuade people that if they wanted to teach physical science it was no use to proceed by filling the minds of the students with general propositions which they did not understand, from which they were to deduce details which they comprehended still less. At present the scheme of technological education in connection with which the prizes were given, extended over 150 centres in different parts of the country embracing nearly 3,000 examiners. Six years ago none of these schools which were for the education of workmen were in existence. He had not the smallest doubt that before this generation passed away instead of 150 centres at which such examinations were conducted, they would be counted by hundreds; and instead of two or three high class places of technical instruction, they would be counted by the score, and that they would have in the central institute the great uniting point for the whole net-work through which the information and the discipline which were needed for carrying the industries of the country into operation would be distributed into every locality. These were places where every young artisan of industry and ability could receive encouragement to his ambition. Everything which spreads a knowledge of technical processes among our industrial classes tends to fit them for the great battle of competition. This struggle every day becomes more difficult, because on the other side of the Atlantic there is a people numerous as ourselves, of the same stock, blood, race and power, who will run us harder than any competitors have hitherto done.—*American Machinist.*

THE MAIN DRIVING BELT.

The engineer is generally supposed to care for the main driving belt, but it is the observation of ages that, however prudent and careful he may be with the machinery under his charge, the belting engages but a small part of his attention, is thought of, in fact, only when there is nothing else to think about. A presumption also exists that the operators of independent machines look after the condition of the smaller belts which keep their respective machines in motion, but this is a presumption which is constantly rebutted in practice. Sometimes, too, it is thought that the "general utility man" about large manufacturing establishments, variously known to mechanical and technical literature, bestows some attention upon the hard-worked and faithful belt, but this arises from the fact that the mission of the "general utility man" has never to this day been clearly understood, not even by himself.

The main driver belt, representing as it does a considerable outlay of money, and performing a most important service, ought in the nature of things, it seems, to receive a good deal of attention from the engineer, but it is the experience of generations that, as a rule, it receives worse than indifferent attention. It is neglected until further neglect becomes plainly inexcusable, and then the needful thing is done in a hurry, frequently from necessity, but not frequently from choice. Even in the matter of oiling or greasing the belt there is generally a manifest absence of good judgment, the engineer pouring on machine oil, petroleum, or anything of an oily or greasy nature that is ready to hand and will run, as a result of which the efficiency of the belt is greatly impaired and its days of service shortened. The bad results which follow such an indiscriminate use of oils are so well understood and feared by belt-making concerns, that in their annual catalogues pages are devoted to the giving of advice on this head. One catalogue which recently came under our eye went so far as to caution belt users against allowing journal boxes to drip on their belting. Generally speaking, it is the better plan to use only those belt oils or preparations of approved value; and the use of rosin upon a belt in connection with any kind of grease or oil is a bad practice, for the rosin is sure to burn the belt. Beef tallow is preferably used on belts by a great many engineers, and is a safe article to use in the way indicated.—*Age of Steel.*

MILLING IS PROGRESSIVE.

Probably in none of the manufactures has a revolution taken place more recently than in flour milling, and no revolution was ever more decided and complete. As might be expected, America, progressive in all its institutions and rapid in its adaptations and inventions, has outstripped all other nations in the race for perfection. The reason for this can be found in the circumstances that Americans have been more willing than any other people to realize that the milling of the present day is a progressive art. Gradual reduction milling, which seven years ago was in its infancy in this country, has now been more generally adopted by American millers than those of any other country. The original types of imported roller mills have been improved out of recognition, and belt driving, various styles of corrugations, automatic adjustments and cheapness have all been considered and provided for. No single machine has been allowed to remain without improvement. American purifiers are without doubt the best in the world, the centrifugal reels are built of better wood and sold for a lower price than in their original home where labor is not so well paid. Discs for the first break in the reduction of wheat are made in this country and are capable of performing better work than we have yet seen. To say that American grain-cleaning machinery is used the world over is only to tell that which is quite well known.

And if it be true that in milling appliances and their adoption America has progressed so rapidly, what can be said of the results obtained in manufacture? Undoubtedly American flour, as a whole, is superior to any in the world. The system adopted is of a kind with its politics. Its flour is made with an idea that all men are equal. In Hungary it is possible to produce a very small portion of exceedingly fine flour, because there are poor devils to be found who will eat that which in this country would be fed to hogs. Such a system is neither desirable nor possible in America. The finest grades made are practically as good as can be desired, and the lowest are reasonably good. Acknowledging all this, we do not believe that the limit of perfection is reached. There is an increasing desire to excel, and the means will be found from time to time to partially satisfy the craving.—*Millers' Journal.*

A TOUGH STORY.

A very, very tough story, in which a chicken, a rat, a cat, a dog and a boy figured, was going the rounds in the East End yesterday. The story is vouched for by good authority, and on this account is all the more remarkable. It is related that Mr. Sam McCurdy was sitting 'neath the shade of a tree in the back yard of his residence on Clay, near Franklin street, talking to some friends, when his attention was called to a hen with a brood of young chickens, and a large rat that had just emerged from its hole and was quietly regarding the young chickens with the prospect of a meal in view. As the rat came from a hole the house-cat woke from her afternoon nap and caught sight of the rat. Crouching low she waited for developments, and stood prepared to spring upon his ratship. At the appearance of his ancient enemy, the dog, a Scotch terrier, which had been sunning itself in the wood-shed, pricked up its ears and quietly made for the place where the cat stood. At this moment a boy named Andy Quad came upon the scene. The chickens were not cognizant of being watched by the rat, nor did the rat see the cat, nor the feline the dog, who had not noticed the coming of the boy. A little chick wandered too nigh, and he was seized by the rat, which was in turn pounced upon by the cat, and the cat was caught in the mouth of the dog. The rat would not cease his hold on the chicken, and the cat, in spite of the shaking she was getting from the dog did not let go the rat. It was fun for the boy, and in high glee he watched the contest and the struggle of each of the victims. It seemed to him that the rat was about to escape after a time, and seizing a stone, he hurled it at the rodent. The aim was not good, and the stone struck the dog right between the eyes. The terrier released his grip on the cat and fell over dead. It had breathed its last before the cat in turn let go the rat and turned over and died. The rat did not long survive the enemy, and by the side of the already dead chicken he laid himself down and gave up the ghost.

The owner of the dog was so angry at his death that he is said to have come near making the story complete by killing the boy that killed the dog that shook the cat that caught the rat that bit the chicken on Clay street.—*Courier Journal.*

A FLOUR-ROLLER'S ENORMOUS REWARD FOR SAVING A MAN'S LIFE.

A stranger who got into the Union Depot yards yesterday while trying to find the railroad ferry slip would have been run down by one of the numerous switch locomotives had not a man at work in the flour sheds seized him and pulled him off the track. The stranger was greatly confused and shaken up for a moment, but after he had taken a seat on the platform and got his breath he called out:

"My man, that was nobly done! I expect you can make use of $5,000 in cash?"

"Well, perhaps."

The stranger breathed heavily, rubbed his arm, and after a minute continued:

"Yes, I feel just like making you a present of a thousand dollars."

This was a painful reduction from his first observation, but it wasn't for the flour-roller to find fault. He brushed away at the stranger's hat to get the dust off, and as he handed it over he was informed:

"I think you would know where to put $100 if you had it, eh?"

"I want nothing, sir. You were in danger, and I pulled you away."

"But I shall insist upon your accepting something. You certainly saved my life, and I shouldn't begrudge $25."

He got out his wallet, which was crowded full of bills, and as he handled them over he remarked:

"Ten dollars would buy your wife a dress, and every time she wore it you could think of me."

"Yes, sir."

The bill came out but was quickly replaced, and after a minute spent in some mental calculation the stranger all at once handed out a two-dollar bill, with the observation:

"Here, my man, go and get you a new hat, and rest assured I shall ever be grateful to you."

Then it was seen that the laborer was painfully embarrassed. He shifted from one leg to the other, looked up and down the shed and when asked the trouble he replied:

"Please, sir, but haven't you any small change about you? I think a quarter would be plenty of reward for saving your life."

"A quarter! Well, considering the railroad company pays you for the time you were hauling me around, maybe that's enough. Here it is, and I hope you will make good use of it. I guess I can get down to the slip all right from here, but if you happen to save my life again you can look for half a dollar at least."—*Detroit Free Press.*

THINGS WORTH KNOWING.

About Sharpening Mill Picks.—There is nothing peculiar in hardening mill picks, only that they should be as hard as possible and moderately tough. The greatest care should be taken to avoid burning the steel. Where there is much of this work to be done, the picks can be heated in a pot of cherry red hot lead, then dipped plumb into clear water at about 60°. Do not draw the temper. The hardening by the ordinary smith's fire can be well done if charcoal is used, and not hurried through the fire. Hurry burns the corners. Much also depends upon the shape of the pick, as to whether it is a sectional or leaf pick, or a thick, solid pick, the last being the most difficult to manage, on account of the sharp edge and thick back. They should be laid across the fire, so as to heat the eye as fast as the edge.

A Word to Apprentices.—Many boys in the machine shop lose their opportunities of becoming skilled mechanics through waiting for a better job, just as men die waiting for something to turn up. There is no job to begin to do good work on like the one in hand, and no mistake greater than supposing that the very best mechanical skill cannot be shown on what would be called a very ordinary piece of work. Nothing is more common than to hear complaints from apprentices that they don't get an opportunity to learn the trade at which they are working, but generally speaking no one *gets* the opportunity; he *makes* it. There is no conspiracy to keep any one out of the position he ought to fill, but he must get into that position by his own exertions. If a boy demonstrates that he is capable of doing a simple job of work better than any one else, he is morally certain to get tried on a better one, if there is a better one. If he fails to do the present job right because there isn't scope enough for his ambition, he makes it appear that it would be unsafe to trust him with better work. There is no other sure road to advancement than through present duties well performed.

Stained Floors.—The popularity of stained floors goes on increasing. Nowhere are they more appreciated than in sleeping-rooms, where sweetness and freshness are the main considerations. Just what is the best stain is a difficult question to decide. A writer in the London *Queen* is of opinion that permanganate of potash is the best. It is much used in the navy, and is very satisfactory in sitting-rooms and sleeping rooms. As most people know, permanganate of potash not only stains, but purifies and disinfects the rooms which are stained. The mode of procedure is this: Procure a good quality of permanganate of potash; dissolve about an ounce and a half of the crystals in a gallon of boiling water—this will make quite a dark stain; use a stick to stir up the mixture; then with a painter's flat brush lay on the stain, working the way of the grain of the wood quickly and boldly. A small brush is useful for corners and crevices, and a pair of heavy gloves should be worn while at work, as the permanganate stains very considerably. Salts of lemon or the lemon juice, will, however, quickly remove the stains from the hands. When dry the staining can be repeated if the color is not dark enough, and then when perfectly dry the floor should be rubbed with an old duster, and linseed oil should be rubbed on freely with a piece of flannel, always applying it with the grain of the wood. Two or three layers of the oil are an improvement, and firmly set the stain. The floor is then ready to be polished with beeswax and turpentine. To prepare this, spread or cut up the wax into small pieces; put it in a gallipot, and pour sufficient spirits of turpentine over it just to cover it; set the pot in the oven or on the stove until the wax is thoroughly melted, then set it aside to get cold, when it should be of the consistency of pomatum. Put on the wax—not too much of it—with a piece of flannel, and polish with a polishing-brush, or a big silk duster. This mode of treating floors is quite the best and most wholesome for bed-rooms, which should be stained all over, under the beds and everywhere. They can be kept very clean and bright by a daily rubbing with a duster, and a weekly application of beeswax and turpentine. Turpentine is cleansing, and floors so treated do not require the weekly scrubbing which is so objectionable in cold and wet weather. Some people object that these floors require so much labor; but after they are once well polished, the labor is not more than scrubbing floors and washing oil cloths, and they take away two-thirds of the terrors of house-cleaning. Those who like the more common varnished floors should stain the floors as above; but instead of the linseed oil a coat of size should be laid on. This can be obtained at the paint shops, and should be dissolved in boiling water to the consistency of this gum, and then laid on with the brush evenly and with the grain. When the size is perfectly dry and hard it can be varnished with one or two coats of copal or eggshell flat varnish. These floors require to be dusted daily, and to have a little linseed oil rubbed in occasionally. These require less care than a waxed floor, but when they get shabby they are not so easily renovated. A flannel bag in which the broom can be encased is the best floor duster, and one most easily managed.—*American Architect.*

Catechism of the Board.—*What is a Bull?*—A bull is a person who talks much of the prosperity of the country, the vast earning capacities of the railroads, the big crops out west, and then eats a ten-cent sandwich for dinner.

What is a Bear?—A bear is a person who talks much of the depression of the iron trade, over-production, too many railroads, and that everything must go to smash. In the evening he occupies a front seat in the crack theater of the town.

What is a Broker?—A broker is one who, in consideration of a certain commission, properly sees to it that you "go broke."

What is a Put?—A put is an instrument in writing which secures to you the right of putting your money where you will never see it again.

What is a Call?—A call is an instrument of torture benevolently issued by a capitalist. The profits you thought you would make generally begin after it has expired. Brokers sometimes accept them as margins.

What is a Margin?—A margin is a sum of money put up on your deal. It has a patent right for always growing smaller, and is related by marriage to a stop-order.

What is a Stop Order?—A stop order is an electric machine used in firing you out of the market.—*Wall Street News.*

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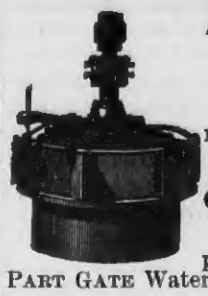

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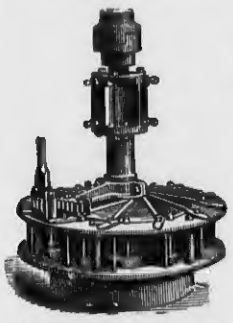

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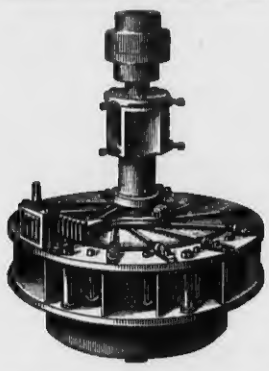

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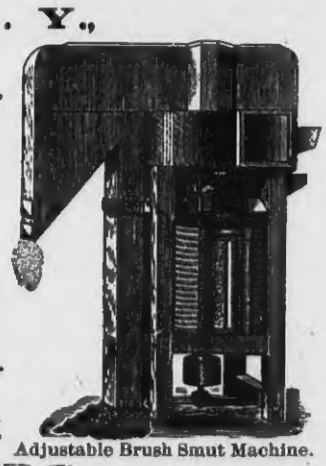

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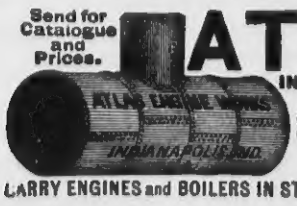

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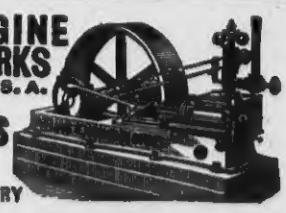

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AVOIDING THE HESSIAN FLY.

In a paper read before a scientific association at Minneapolis, Minn., last fall, it is stated that, contrary to general belief, the earliest sowings of winter wheat are not liable to so great injury by the Hessian fly as later sown crops. A large number of observations were made in Perry county, Pa., and the farmers there are said "to maintain that the earliest sown wheat, that put in during the first week of September, often yields a good crop, while that which is sown between the 10th and 22d is badly infested, and the latest, that sown in the last week of the month, again escapes." According to the report of the paper, in the *American Naturalist* for February, the author thinks that the early sown wheat does not escape the fly, but it grows strong, and tillers much more than the late wheat, and the number of insects is not sufficient to weaken so many stalks so that they will fall. That later sown has less stalks, and the number of larvæ to stalks is necessarily so increased that the straw is sure to break down, or even die outright, during the winter, before the straw has been formed. The author of the paper states that the spring brood does the mischief seen before harvest, hence many farmers never observe the attacks of the fall brood. He says that the death of wheat roots during winter from attacks of the fall brood causes a great reduction in the numbers of those insects, which are in the "flax seed" or pupal form, and are frozen in their winter quarters. The absence of vitality in the wheat seems in some way to render the insects more liable to danger from severe cold, although there does not seem to be any more appreciable warmth in a living plant than in a dead one. It appears to the writer of the paper that the insects, by killing the wheat roots, become in some measure the means of their own destruction, and that this is an "efficient cause checking to a great extent the excessive multiplication of this pest."

CUTTING OFF TIMBER, AND FLOODS.

Following the terribly destructive floods of recent date, every kind of theory has come to the surface. The one most often advanced, that the floods are caused by cutting off timber, seems to be overthrown successfully by the following strongly written article, which we clip from a recent number of the *Northwestern Lumberman:*

"We would like to have the individuals who are clamoring for government interference for the prevention of floods, answer the following question: If the denudation of forest lands on the upper Ohio and tributaries was the cause of the flood last year and the disastrous overflow now prevailing, what is the cause of the rise in the Arkansas, St. Francis and Red Rivers of the South, all of which are now booming? Do those afflicted with the denudation craze know that the rivers mentioned flow mostly through densely wooded districts? The writer was lately in the forests of the Yazoo delta, miles from human habitation. At the time it had been raining like a deluge for days. The ravines and gullies were carrying great volumes of water into the bayous and rivers. Did the heavy growth of timber, the mosses and interlacing roots stop the outflow? Not any worth mentioning. Water falling on the surface of the earth will seek a lower level, whether it is overshadowed by trees or not. Floods occurred hundreds of years ago, the same as they do now. Men talk as if there never was a flood in the Ohio or Mississippi until 1882 and 1883. One of the biggest rises ever known to the white man in the Ohio occurred in 1832, when it and its tributaries still flowed through the almost unbroken primeval forest. If the question were thoroughly looked up in its far-reaching historical features, it would be discovered that never in the annals of this country was there a more idiotic, baseless conclusion than that now prevailing in the popular mind about the denudation of forest land causing recent floods in the great rivers."

FLOUR MILLS BURNED.

Recent advices say that Hill Bro's flouring mills at Freeport, Pa., were destroyed by fire March 1st. One thousand barrels of flour, with a large amount of grain in storage, and the entire books of the concern, with many valuable papers, were also destroyed. The loss is estimated at $13,000, with but a partial insurance. The fire is supposed to have been caused by sparks from the smoke-stack falling on the roof.

C. E. Eggleston & Co.'s large flouring mill at Horicon, Wis., was entirely destroyed by fire on March 3d. The fire was first discovered in the wind-mill tower. As we are just going to press we cannot give full particulars.

John Leary's Mill at Cannington, Ont., has been burned.

The mill of Geo. Moenah, at Rushville, has been destroyed by fire. Partly insured.

J. H. Bartley's flouring mills at Hastings, Mich., were burned on Sunday, Feb. 17th. Loss $15,000.

Hutton & Son's flouring mill at Pokagon, Mich., burned on the night of Feb. 14th. Loss $15,000; insured for $8,000.

About 2 o'clock on the night of Feb. 14th, the two-and-one-half-story steam flouring mill of Messrs. Williams & Grant, at Reniak, Mo., took fire, as is supposed, in the engine room. There being no appliances for the suppression of fire, and the flames when discovered having obtained great headway, the whole mill, together with about 40,000 pounds of flour in sacks, was destroyed. The loss is estimated at $12,000, on which there is an insurance of $8,000.

FREIGHT RATES AND EXPORTS.

Ocean freights are very dull and mainly lower. The following rates, reported by Henderson Bros., agents of the Anchor line, were current on the New York market during last week:

Ports.	Flour, per 100 lbs.	Wheat, per bu.
Liverpool	11.50c	5¼c
London	14.06c	6.0c
Glasgow	16.88c	6.0c
Leith	16.88c	8.5c
Bristol	16.88c	8.5c

The regular tariff on Flour is as follows:

To Chicago, per 100 lbs	20c
To New York, " "	50c
To Boston " "	55c

Rates are unsettled and the above figures are not reliable as indicating actual transactions.

LABOR'S SHARE IN THE COST OF PRODUCTION.—The London *Times* recently made a comparative statement of the division of the cost of products in England, France, and the United States. It sets out with the statement that potentially the United States possesses greater realized wealth than the United Kingdom. The entire wealth of the United Kingdom is a little over thirty-nine thousand millions. That of the United States is forty-nine thousand millions. Taking the cost of production at 100, the *Times* shows that in England 56 per cent. goes to labor, 21 per cent. to capital and 23 per cent. to the government. In France 41 per cent. goes to labor, 36 to capital and 23 per cent. to the government. But in the United States 72 per cent. goes to labor, 23 per cent to capital and 5 per cent. to the government. It will thus be seen, says a Philadelphia contemporary, that wages in this country take 72-100ths of the market price of a manufactured product, while capital takes less than one-third of that sum. The disparity must strike every sober-minded citizen as remarkable. The claim that labor reaps the largest amount of profit by the American policy is often denied, but here we have a high British authority admitting that labor receives 50 per cent. more here than it receives in Free Trade England. This is not an admission to be lightly passed, because it is based upon the figures gathered by statisticians, which figures are omitted from the report of the tenth census.

IMMIGRATION.—The Bureau of Statistics at Washington furnishes us with a statement of the immigrants arrived in this country during the month of January, 1884, and for the seven months ended therewith, as compared with the arrivals for the corresponding periods of the year preceding. The total number of immigrants arrived during January, 1884, was 12,015, against 12,940 for January, 1883—a decrease of 925. Of the total number of immigrants arrived in January, 1884, there arrived from England and Wales, 1,699; Ireland, 514; Scotland, 236, (total from United Kingdom, 2,450); Austria, 503; Bohemia, 97; Belgium, 46; Denmark, 83; France, 198; Germany, 3,271; Hungary, 962; Italy, 642; Netherlands, 62; Norway, 76; Russia, 529; Poland, 124; Sweden, 98; Switzerland, 284; Dominion of Canada, 2,350; and from all other countries, 240. The following table shows the number of immigrants for the seven months ended January 31, 1884, from the several countries named, as compared with like statistics for the corresponding period of the year preceding:

Countries.	1884.	1883.
England and Wales	30,087	40,142
Ireland	20,022	20,054
Scotland	6,119	6,220
Austria	5,720	5,041
Germany	85,167	96,253
Italy	6,848	9,388
Norway	7,393	9,494
Sweden	10,831	16,746
Dominion of Canada	33,339	36,888
All other countries	34,640	42,293
Total	250,366	283,419

D. R. FRANCIS & BRO., Feb. 5, made the largest sale of cash wheat ever made to a miller in St. Louis, the Wing Milling Company of St. Louis, whose mill, with a capacity of 2,000 barrels of flour daily, is at Litchfield, Ill., purchasing 213,000 bushels of No. 2 red winter wheat. Part of it is stored in the Venice elevator and the remainder in the Union. It will be shipped to Litchfield at the rate of 8,000 bushels daily. When the sale was made known wheat at St. Louis ran up 1¢c. A few minutes later the effect was noted on the Chicago blackboard, where there was an advance of 1 cent. It soon turned out, however, that the Chicago flurry was caused by a belief that the wheat had been sold for export. When Mr. D. R. Francis heard of this he telegraphed the true facts to Chicago, and the excitement died out, and wheat went back the cent it had jumped. An evening paper gave currency to an alleged rumor that this sale was part of a scheme to squeeze the "shorts" by selling off all the No. 2 red in store. Moses Fradey who has reason to feel an interest in any such state of affairs, said that the withdrawal of 10,000 bushels of wheat daily for milling purposes need create no flutter whatever, as it would be offset daily by the receipts. Had it been sold for export, and the 600,000 bushels of stock been suddenly reduced to less than 400,000 some excitement might be expected to follow.

THE steam grain elevator at Brownsdale, Minn., has been burned. The workmen had shut down about half an hour before and closed up for the night. When discovered the fire had made such headway that nothing could be done to save the building. Nothing was saved, as there were no conveniences for extinguishing fires in the place. The building was of 30,000 bushels capacity, built in 1881, and was owned in equal shares by C. A. Biglow, James Stewart, and Mrs. J. C. Thatcher. It cost $6.000. Total insurance on building, $4,000, as follows: Home, $1,000; Germania, $1.000; Milwaukee Mechanics, $1,000; Concordia, $1,000. At the time of the fire there were about 8,500 bushels of grain and seed in the building. All spoiled. Nothing of building, machinery or grain was saved. Commission men in Milwaukee hold $3,000 insurance on the grain. About $400 of stored grain was also burned. The cause of the fire is unknown, as when discovered the building could not be entered. It took fire around the scouring machine that had been run heavily all day. The building will probably be rebuilt.

GOLD VS. WHEAT.—An Eastern man, now in San Francisco, writes that the era of wheat will come to an end like those of gold, of hides and tallow, and of Indian hunting for furs and wild beasts. The letter says: "In the near future we can see in its stead of land of fruit trees and vines, a new France in our republic, greater than France, a republic by itself. There is scarcely any difference in acreage. California has 189,000 square miles, and France has less than 200,000. In climate and soil California is superior. It could support 30.000.000 Frenchmen, if we had them here with their economical habits, as well as it now supports 1,000,000 extravagant solidisant Americans."—*Philadelphia Commercial List.*

A CONTRACT for the sale of a grain separator specified the price of the machine and provided that the freight thereon to the point of delivery should not exceed a designated amount. Upon the arrival of the machine the vendor presented a bill for an amount of freight greater than that specified in the contract. The Supreme Court of Georgia held, in the case of Johnson vs. Latimer, et al., decided on the 15th ult., that the vendee was not compelled to accept the property and claim a deduction on account of the excessive freight charges, but that he could refuse to receive the machine, and repudiate the contract.

ON the morning of Feb. 14, the employes at the Hoosier flouring mills at Indianapolis, Ind., were startled by an apparently inexplicable stoppage of the machinery. Rushing to the engine room, they discovered the cause in the horribly mangled body of George Emery, the engineer. His clothing had been caught by the shaft of the fly-wheel, and he had been whipped to a frightful death. The accident was not known until the stoppage of the engine for want of steam directed attention to it. Emery leaves a wife and child.

AUSTRALIAN GRAIN REPORT.—From R. Goldsbrough's monthly report just to hand we quote: Since the last monthly report very little business has been transacted in the grain market, our export trade having been very limited, consequently all supplies coming forward have passed into the hands of the local trader.

As the season has now so far advanced we are better able to form a correct estimate of the forthcoming wheat yield, which, with few exceptions, are most satisfactory, as our surplus available for export will certainly approach 200,000 tons, or more than double last year's quantity.

We hear of several ships being chartered at freights ranging from 37s 6d to 42s 0d per ton, according to size and class; but the prices at present asked by growers being higher than shippers can afford to give (considering the prospects of the European market), we fear that our export trade will not be so brisk as it should be until the necessity of getting rid of such a large surplus forces itself on holders, who will certainly be studying their own interest in selling at current rates, rather than holding in anticipation of better prices later in the season.

WHEAT.—Very little of the new crop has come forward to date, the season being fully a fortnight later than usual. Our prices rule 4s 3d for new and 4s 5d per bushel for old, with a good demand, millers being in short supply.

FLOUR has advanced from £9 10s to £9 15s per ton, and the quantity on hand limited. As the new wheat comes to hand prices will likely fall to about £9, there not being much inquiry for export at present.

OATS are dull of sale, and the quality of the new crop which has so far come to market is very inferior, selling from 2s 10d to 3s 2d, according to sample.

BARLEY.—The new crop is coming to hand, but growers' views as to values not being in accord with malsters' estimates, stocks are being stored. Our quotation for malting samples is from 3s 6d to 4s per bushel, feed parcels offering at 2s 6d.

MAIZE is saleable at 4s 1d; PEAS, 2s 11d; and BRAN, 10½d per bushel.

THE Paris correspondent of the *Post* states that the French government proposes to sell the State railways. It is believed that the Rothschilds, in behalf of certain great railway companies, have offered the government 420,000,000 francs for the lines. If the sale is effected the government will be enabled to dispense with its contemplated loan of 400,000,000 francs.

ADDITIONAL ITEMS.

According to the latest investigations the deepest spot in the Atlantic ocean is 27,100 feet.

Ohio has not so many acres in wheat for next year's harvest as in 1883, but its condition is better.

The mill of F. Donner, at Columbus, Ind., is being enlarged and remodeled to 150 barrels capacity.

Messrs. Shaver & Patten are now building a mill in Appleton, Wis., for grinding rye and buckwheat flour.

F. M. Biely & Sons, Lebanon, Ind., will start up their mill in a few days on the "Case" gradual reduction system.

The Alma City, Minn., flouring mill is running on full time, the supply of water being more than sufficient for all purposes.

The stock and grain house of McGinnis Brothers & Fearing, of New York, suspended payment Feb. 18 with liabilities of $200,000.

The WAMBOLD PAPER CO., in Appleton, Wis., will soon start up. They have one of the finest paper manufacturing establishments in the West.

A Canadian exchange says, that considerable wheat has been frozen in the neighborhood of Orangeville, Canada. This is the first instance of wheat having been frozen in Ontario reported for years.

The wheat growers of Manitoba think they can get an outlet for their grain via Hudson's Bay. A railway route is being looked up. It is claimed that Hudson's Bay is navigable for five months in the year.

D. Rosenburg, Decatur, Tex., is putting in a 4-run new process flouring mill with the late improvements and their whole outfit is under construction at the shops of Nordyke & Marmon Co., of Indianapolis, Ind.

The schedules of E. W. Coleman & Co., grain and flour merchants of No. 8 Water street, New York, were filed Monday, Feb. 12, and show liabilities, $758,660.58; nominal assets $402,773.69; actual assets, $58,652.70.

Ferguson & Owens, of Waynesville, N. C., are building a 3-run water power mill and, desiring a model outfit, have placed their contract with Nordyke & Marmon Co., of Indianapolis, Ind., for their entire machinery.

The Northern Pacific elevator at Fargo, Dak., has received so far 130,050 bushels of last year's wheat crop, and about 88 per cent. of it was graded No. 1 hard. The Lisbon elevators have taken in about 60,000 bushels. Fifty other elevators operated by the company along the line of the Northern Pacific railroad in Dakota, have received proportionately large quantities and of quite as high a grade.

The line of elevators and grain warehouses recently purchased by Strong & Miller, of Minneapolis, Minn., of H. D. Kellogg, are located on the Hastings & Dakota division of the Milwaukee & St. Paul—Montevideo, Watson, Sacred Heart, Renville, Buffalo Lake, Norwood, Oliva and Granite Falls. Mr. Strong, of the purchasing firm, is now inspecting the elevators, with a view of ascertaining their total capacity.

The Empire Mill at Millersburg, O., will commence running in a few days. The services of Mr. Wm. Damp, of Akron, O., have been secured as miller. Mr. Damp is a miller of 30 years' experience, having milled in England previous to coming to this country, and of late years has been in connection with some of the best mills in the country, and goes to Millersburg with the highest recommendation of the Akron millers.

Field, Lindley & Co., of Chicago Feb. 4, received from London a sample of Saxonska wheat, which was offered at 38s 6d per 492 lbs. London terms. That means not much less than 20c per bushel less than Chicago wheat would cost to be laid down in London in competition with it, and a careful comparison with a sample drawn from the Chicago elevators shows that the Saxonska wheat is about equal to the average No. 2 spring. This certainly does not argue much of an export demand for our wheat, except as passenger steamers may take it for ballast.

ELECTRICITY UTILIZED IN MILLING.

BY CARL ZIPERNOWSKY.

Like other industries milling profits by the latest discoveries in electric science. By its application several improvements have been introduced which brings the milling industry to a high degree of perfection, while at the same time they make the management of complicated milling machineryconsiderable easier and also more accurate. I mention here in the first place the different electric bells and signal apparatuses which afford communication between proprietors and employes, which communication they simplify to a great extent. At the same time a certain signal language is invented by the use of which the necessary orders are distributed over the entire establishment. The electric bell shows the miller which stones or rolls are running too hot, while through the "temperature contact" the so-called metallic thermometer, which is placed near every stone or set of rolls, the miller is warned and can do what is necessary in the matter. In large milling establishments a complete system of bells is introduced, which, like the communicators in hotels, is connected with a board on which the different apartments are represented by numbers, and the whole is arranged in such a manner that when any stone or roll runs hot, at once the corresponding number on the board in the engine room drops down. In America successful attempts have been made to separate the bran from the middlings by means of electricity. They have also succeeded by means of an electro-magnet to eliminate metalic particles which may be found with the grain. The grain runs over a surface which is shaken in different directions before the poles of a powerful electro-magnet. The magnet force works in this way as well on the grain as on the particles of iron found with it. By the attractive force of the electro-magnet these particles of iron are taken out and adhere to the magnet and are moved from this by suitable devices.

Without doubt the transmission of power by means of electricity will find its application in the milling industry at no distant date. Although we are already able, by means of electric transmission, to utilize large forces at great distances with a fair degree of success still this application has up to the present time been made only in a few instances. The problem of the transmission of power by means of electricity has, however, been solved only in a few instances in a way that would be of general application, as for instance to the steam engine, water wheel and wind motor, and these two last named forces are the ones which some day, perhaps in the near future, will be destined to furnish the motor power for machine shops and also for mills, with the help of electricity. Even if, as has been said, the transmission of greater forces has not been put to practice as yet, the reason for this is by no means that the transmission of power by means of electricity is at its present stage still too incomplete to solve satisfactorily the problem assigned to it, but the reason lies in the newness of the thing, and in the fact, that the persons interested have thus far had no sufficient opportunities to convince themselves of the advantages of this transmission of force. To meet this want the "Electric Exposition of Vienna" is called together, where an opportunity is offered to the interested public to become acquainted with the electric transmission of power.

The electric transmission of power for milling purposes is shown here by the firm of Ganz & Co., Buda-Pesth, who have on exhibition a machine expressly constructed for this purpose, by which about twelve horse-power is transmitted by electricity. To accomplish this two primary engines in the machinery hall are set in motion by a locomobile, and the electric current originated in these primary engines is conducted by a thin wire to a secondary motor, which is set into motion by the electricity supplied by the primary engines. This wire, before reaching the secondary motor, is passed through an ingeniously constructed regulator, the purpose of which is to secure a uniform number of revolutions to the motor.

Since it is a well known fact that in a mill the pressure frequently changes so that in proportion as the feeder lets in more or less grain, in the same proportion more or less force is required, we can readily perceive that the velocity of the secondary motor would continually change. This changing is prohibited by the regulator, which by an automatic introduction of resistance keeps the velocity of the machine uniform.

Another application of electricity which is very important for mills, as well as for other establishments, is the well known fire telegraph which should not be wanting in any establishment. However, this telegraph can only indicate a fire that has already broken out, and enable men to prevent its further spreading. Electricity, however, offers a much more effective preventive against fire. For electricity has made it possible to establish for places which are in great danger of fire a method of illumination which, when properly used, completely excludes all danger of fire and explosion. It is the so-called "incandescent illumination," i. e. the illumination with glow lamps, which since their invention have made considerable headway. The principle of the glow light rests on the incandescence of a bad conductor of electricity. The history of this invention reaches back to the first ten years of this century. The first impulse to practical experiments with electric glow lamps was given by Prof. Jobard of Brussels, who in 1828 advanced the theory that carbon, used as a conductor in a vacuum, would give a beautiful and intense light. DeChangy, a Belgian engineer, took up this theory and experimented for a long time with glow lamps, while he first used pieces of carbon and afterwards platinum as glowing substances, without being able to bring forth practical results. The American, Starr, was somewhat more successful, who in the year 1844 made in England very interesting experiments with the glow lamps constructed by himself. But the sudden death of Starr hindered the further perfection of these first experiments, and his invention was soon forgotten, but which his partner King had patented in the year 1845. Then followed a number of experimenters, who with different materials, as platinum, iridium, and mixtures of these two metals, and later also with carbon, made experiments with glow lights, without any great success however.

Thus far I have spoken of electric illumination in general, as it can be applied in every industrial establishment, and especially in mills. Allow me now to go a little more into details concerning such application and the cost of such electric light as has already been introduced by Ganz & Co., into several flour mills and other establishments with the best results. This should be the more welcome to the milling interest, as to the best of any knowledge and belief, this topic has not been discussed in any of the periodicals with the clearness desirable for millers and manufacturers who wish to introduce electric light. I will, therefore, suppose you may do away with your present manner of lighting and introduce electric light in its place into your mill. Hitherto you have had in use a certain number of coal oil or gas lights. A coal oil flame in mills has an illuminating power of from five to eight candles, and a gas flame in a mill has no more as a rule; in other localities the illuminating power increases to from ten to twelve candles. All will be ready to admit that the manner of illumination in mills at the present time leaves much to be wished for, and especially is the degree of brightness in most cases extremely small. The proprietors of mills are forced to economize on account of the expense of illumination. Here electricity lends a helping hand to the proprietors. to beautify and better the light without additional expense. In Hungary, the Swan lamps have been extensively introduced of late; especially two kinds are used, those of twelve and those of twenty candle power. For mills the former would be sufficient. We shall now replace every coal oil or gas flame by an electric lamp, and the miller can determine the number of new lamps by the number formerly in use. In small establishments, especially in those in which water power is used, it is preferable for the sake of economy to use the motor power of a mill for a generator of the electric light. In larger institutions, however, it is better to use the motor power for the mill for the generator and to erect besides, a special engine, and to arrange the combination in such a way that the generator for the light is ordinarily supplied by the special engine, and only, in case that for some reason or another this engine should get out of repair, the large motor power would be called into action by means of friction couplings, in order that the illumination might continue without interruption. The boiler for both engines can under all circumstances be a common one, so that there is no necessity for double heating apparatus. It is the most appropriate to place the electric motor in the engine house, in order that it may be under direct supervision of the engineer. From this motor go the conducting wires, properly speaking, the main cable to the different places which are to be lighted. From the main cable the wires which lead to the separate rooms branch off, and from these wires the thinner wires to the individual lamps. The whole system has much similarity with the system of pipes in gas illumination, with the difference that by the latter only one line is necessary, while with electric light, conductors back and forth are necessary, and consequently a double main cable has to be laid. As in gas works, so is here also the diameter of the main conductor in direct ratio with the number of flames and the distance, while for the branching off into separate localities there as well as here smaller conductors are used. As with gas so it is also possible with electric light, to let the individual lamps go out or to light them, as may be necessary, and in electric light it is even accomplished in a much simpler and more appropriate way, and I would especially call attention to the fact that the lighting of the several lamps is accomplished without the aid of combustible material—only by a simple movement of the hand. For the sake of economy as well as for other reasons, it is often desirable to increase the illuminating power of the lamp or to decrease it. For this purpose there is near the engine a resisting apparatus, with which it is possible to regulate the light. This apparatus can be compared with the valve of a gas tube which regulates the amount of gas and thus regulates the brightness of the several lights. This apparatus also serves to reduce the current in case a large number of lights are extinguished, and to increase it if more lights are in use. The firm of Ganz & Co., have constructed apparatus which are self regulating. As this apparatus is rather expensive for smaller establishments, an ingenious apparatus has been constructed which warns the engineer when too much or too little current is generated.

THAT British manufacturers are anxiously looking forward to the time when free trade will be the order of the day in the United States of America may be seen from the following paragraph from the *Machinery Market*, a British trade journal:

"The year is likely to see important political changes on the other side of the Atlantic, which will have their influence on business here. Events move rapidly in America, and the coming triumph of the Democratic party there means the triumph of the free trade movement in the States.

"It is not to be supposed that there will be free imports into the States, but a 'tariff for revenue only,' which is the leading cry of the Democrats, will open an immense additional field for the sale of English manufactured goods in the states."

A NEW TREATMENT FOR NEURALGIA.—The latest agent introduced for the relief of neuralgia is a one per cent. solution of hyperosmic acid, administered by subcutaneous injection. It has been employed in Billroth's clinic in a few cases. One of the patients had been a martyr to sciatica for years, and had tried innumerable remedies, including the application of electricity no fewer than 200 times, while for a whole year he had adopted vegetarianism. Billroth injected the above remedy between the tuber ischii and trochanter, and within a day or two the pain was greatly relieved and eventually quite disappeared. It would be rash to conclude too much from these results in the face of the intractability of neuralgia to medication, but if it really proves to be as efficacious as considered, hyperosmic acid will be a therapeutic agent of no mean value.—*Lancet.*

RUBBER BELTS.—I have noticed that grain elevators use rubber belts almost exclusively. The other day I asked the representative of a rubber belt company the reason for this. He replied that it was because rubber belts were just as good as leather belts for carrying the grain, and were cheaper. I next asked a leather belt maker. He said that the elevators used rubber belts for the reason that strong belts were not so much needed as wide ones, that the belts had to be wide so that large cups could be attached to them, and that leather belts of this kind would be too costly.—*Quid Nunc. in Age of Steel.*

RICE AND CORN.—Rice is rather more nourishing than corn in some respects and less in others. Rice has more albuminous and less mineral matter; corn more starch. It constitutes a chief article of food in India, where it costs about a cent a pound. As a food for children and invalids it ranks high, and is most easily digested, and does not cause indigestion. Its starch is almost all absorbed in the digestive tract, which is not the case with corn.

NEWS.

H. Burt, miller at Nauvoo, Ill., is reported to have failed.

A. Palmer's mill at South Toledo, Ohio, was recently damaged by fire. Fully insured.

A. Kaus & Son have sold out their milling business in Parkdale, Minn., to Louis Goodsell.

James Rogers, Litchfield, Ill., has lately started up his mill on the Case gradual reduction system.

Hayden & Son, Elizabeth, Pa., have lately started up their mill on the "Case" gradual reduction system.

The Case Mf'g Co., Columbus, O., have lately shipped David Z. Creitz, Cambridge City, Ind., 1 No. 1 double purifier.

F. M. Busby & Sons, Lebanon, Ind., will start up their mill in a few days on the "Case" gradual reduction system.

The Case Mf'g Co., Columbus, Ohio, have an order from Harvey & Griffin, Greenwich, Ohio, for 1 No. 1 double purifier.

The Case Mf'g Co., Columbus, Ohio, have just shipped the St. Paul Roller Mills, St. Paul, Minn., 1 No. 1 double purifier.

The Case Mf'g Co., Columbus, Ohio, have lately shipped Stephens & Moreland, Hudson, Mich., one No. 2 single purifier.

The Case Mf'g Co. have lately secured the contract of Isaac McCully, Pattonsburd, Mo., for breaks, rolls, scalpers, &c.

The Case Mf'g Co., Columbus, Ohio, have lately shipped McDuffin & Bro's, Michigan City, Ind., 2 pairs of rolls, with patent automatic feed.

The Case Mf'g Co., Columbus, Ohio, have an order from John Clee, Detroit, Mich., for one of their patent automatic feed for his "Allis" rolls.

The Case Mf'g Co., Columbus, Ohio, have an order from F. M. Drake, Waldo, Ohio, for one of their patent automatic feeds, for his "Odell" rolls.

The Case Mf'g Co., Columbus, Ohio, have lately received an order from L. N. Tyler, Mosherville, Mich., for one pair rolls with patent automatic feed.

An old mill, long regarded as an eyesore by the people of Moosup, Windham county, Conn., was blown up with powder at night by some parties unknown.

The Case Mf'g Co., Columbus, Ohio, have lately shipped John McCarty, Meridosia, Ill., a line of (Bismarck) rolls and break machines; all with patent automatic feed.

The Case Manufacturing Co., Columbus, Ohio, have an order from Geo. Tileston & Co., Faribault, Minn., for one of their patent automatic feeds for their "Allis" rolls.

The Case Mf'g Co., Columbus, Ohio, have an order from the Great Western Manufacturing Co., Leavenworth, Kansas, for 2 pairs rolls, "Bismarck," with patent automatic feed.

The Case Mf'g Co., Columbus, Ohio, have an order from W. E. Catlin & Co., Chicago, Ill., for 1 pair smooth rolls, with patent automatic feed, to be shipped Froelich & Sandman, Wauconda, Ill.

The Case Mf'g Co., Columbus, Ohio, have just taken the order of W. McIntosh & Son, Monticello, Ind., for breaks, rolls (Bismarck), scalpers, &c. The sale was made by their Chicago agent, W. E. Catlin.

J. C. Bucher, Barnitz, Pa., lately remodeled his mill, putting in a complete outfit of rolls, &c., furnished by the Case Manufacturing Co., Columbus, Ohio. The mill is now in operation with splendid results.

The Case Mf'g Co., Columbus, Ohio, have lately been awarded the contract of John Spencer, Wauconda, Ill., for breaks, rolls, purifiers, centrifugals, scalpers, &c., for a gradual reduction mill on the Case system.

The Case Mf'g Co., Columbus, Ohio, have lately taken the order of D. F. Robinson, Georgetown, D. C., for a line of breaks, rolls ("Bismarck"), purifiers, scalpers, centrifugals, &c., for a complete roller mill on the Case system.

The Case Mf'g Co., Columbus, O., have been awarded the contract of Taylor & Bro's, East Carmel, Ohio, for a complete outfit for a gradual reduction mill on the Case system, using eight pairs of rolls "Bismarck" in connection with their breaks, purifiers, centrifugals, scalpers, &c.

The Case Mf'g Co., Columbus, O., have just received an order from Thos. Robinson & Son (limited), Rochdale, England, for sixteen sets of rolls; as this is a duplicate of former orders from the same firm, it is evidence that the "Case" rolls are appreciated in Europe as well as in America.

The Case Mf'g Co., Columbus, Ohio, have lately taken the contract of Wolf & Bro., New Haven, Mo., for a complete outfit of breaks, rolls, purifiers, centrifugals, scalpers, &c., for a complete gradual reduction mill on the Case system. The mill, when completed will have a daily capacity of 225 bbls.

Dean Bro's, of Indianapolis, Ind., have recently furnished a complete set of water works for a large lumber company at Eau Claire, Wis.; also a large pump for the Clarksville (Tenn.) water works; also a set of vertical pumping machinery for the Citico Furnace, Chattanooga, Tenn.,—capacity one million gallons per day.

The Case Mf'g Co., Columbus, Ohio, have lately been awarded the contract of G. K Ziegler, Bucyrus, Ohio, for a complete outfit for a full gradual reduction mill on the Case system, using 10 pairs of rolls with automatic feed, in connection with their breaks, scalpers, centrifugals, purifiers, &c. The mill when completed, will have a daily capacity of 110 bbls.

The Case Mf'g Co., Columbus, have lately taken the contract of A. Dietly & Son, Moreheadville, Pa., for a complete outfit of breaks, rolls, purifiers, centrifugals, scalpers, &c., for a full roller mill, which, when completed will have a daily capacity of 50 bbls. Eleven pairs of rolls, which the Case Co. make for small mills will be used, and the results guaranteed to equal those of larger mills.
